THE SEVENTH NATIONAL REPORT OF THE REPUBLIC OF BELARUS

FOR THE JOINT CONVENTION ON THE SAFETY OF SPENT FUEL MANAGEMENT AND ON THE SAFETY OF RADIOACTIVE WASTE MANAGEMENT

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LIST OF ABBREVIATIONS

NPP – nuclear power plant;
HLRW – high-level radioactive waste;
Gosatomnadzor – The Department for Nuclear and Radiation Safety of the Ministry for Emergency Situations of the Republic of Belarus;
GRW – gaseous radioactive waste;
LRW – liquid radioactive waste;
IRS – ionizing radiation source;
TRR – thermal research reactor;
IMS – Integrated Management System;
CSS – Committee for State Security of the Republic of Belarus;
CERS – Comprehensive Engineering and Radiation Survey;
MIA – Ministry of Internal Affairs of the Republic of Belarus;
IAEA – International Atomic Energy Agency;
MES – Ministry for Emergency Situations of the Republic of Belarus;
LLRW – low-level radioactive waste;
STC NRS – State Scientific and Technological Institution "Nuclear and Radiation Safety Center" of the Ministry for Emergency Situations of Belarus;
SSI "JIPNR - Sosny" – State Scientific Institution "Joint Institute for Power and Nuclear Research - Sosny" of the National Academy of Sciences of Belarus;
CSTO – Collective Security Treaty Organization;
VLLRW – very low-level radioactive waste;
SNF – spent nuclear fuel;
MNPP "Pamir" – mobile nuclear power plant "Pamir";
DWDF – decontamination waste disposal facility;
RWDF – radioactive waste disposal facility;
QASNPP (G) – general quality assurance for safety in nuclear power plants;
QASBNPPU (O) – quality assurance for safety of the operation of the Belarusian NPP units;
QASNPP (CI) – quality assurance for safety in nuclear power plants during construction and installation works;
QASNPP (C) – quality assurance for safety in nuclear power plants during commissioning of the NPP units;
QAP NM (NF) – quality assurance program for nuclear materials (nuclear fuel) management;
QAP (RWo) – quality assurance program for the management of operational radioactive waste (RWo);
QAP IRS – quality assurance program for management of the ionizing radiation sources;
RWSF – radioactive waste storage facility;
RW – radioactive wastes;
ILRW – intermediate level radioactive waste;
TCP – technical code of the established practice;
SRW – solid radioactive waste.

Section A. INTRODUCTION

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (hereinafter – the Convention) was ratified by the Republic of Belarus on July 17, 2002, and entered into force for the Republic of Belarus on February 24, 2003.

7th National Report of the Republic of Belarus on the implementation of the obligations arising from the requirements of the Convention covers the activities and events since 2017.

Individual issues related to the implementation of the articles of the Convention presented in details in the six previous National Reports of the Republic of Belarus and remained unchanged over the past period are reviewed in this Report briefly.

In the Republic of Belarus, the sources of ionizing radiation, nuclear and radiation techniques and technologies are widely used in industry, science, medicine and other branches of the economy, which leads to the formation of radioactive wastes.

Moreover, in the future radioactive waste will also be formed at the Belarusian NPP. The principal decision on the development of the first nuclear power program in the country was adopted in the beginning of the 2008. In 2020 nuclear fuel was loaded into the reactor of unit No. 1, operations at step “Physical start-up” are carried out.

Since publication of the previous report the following events related to the management of radioactive waste and spent nuclear fuel have taken place in the Republic of Belarus:

in order to create and implement the best from the technological point of view, economically viable, environmentally and socially safe state policy in the field of spent nuclear fuel management at the Belarusian Nuclear Power Plant “The Strategy of Spent Nuclear Fuel Management at the Belarusian Nuclear Power Plant” was developed and approved by the Resolution of the Council of Ministers of the Republic of Belarus No. 558 dated August 22, 2019;

a set of regulatory legal acts (rules and regulations) determining the radioactive waste and spent nuclear fuel management was developed (processed) and implemented;

in February-March 2020, Belarus accepted the IAEA mission on an Integrated Nuclear Infrastructure Review (INIR) for the 3rd phase of the nuclear power program within which the issues of radioactive waste and spent nuclear fuel management were also discussed;

in order to determine the objective level of radiation and the environmental safety, the work on Comprehensive Engineering and Radiation Survey (CERS) of the suspended and decommissioned RW storage facilities of the specialized enterprise for the management of radioactive waste UE “Ekores” was conducted in 2019.

In a wider context the work to improve the infrastructure and systems of nuclear and radiation safety and its components continued in the country: regulatory and legal framework, supervisory activities, licensing, emergency preparedness and response, radioactive waste management, technical support system of the regulatory body in the field of nuclear and radiation safety, etc. The determining factor in this work is the

development of the first nuclear power program (construction of the Belarusian NPP).

The international assessment missions and peer reviews continue making significant contribution to the improvement of the security system of nuclear and radiation safety in the Republic of Belarus: IAEA mission on emergency preparedness and response (EPREV) in 2018, The Advisory Service of the IAEA on nuclear materials accounting and control (ISSAS) in 2019, IAEA mission on pre-commissioning assessment of the operational safety of the Belarusian NPP (pre-OSART) in 2019, above mentioned mission INIR in 2020, as well as the peer review of the stress tests results at the Belarusian NPP, which was carried out by the European Nuclear Safety Regulators Group ENSREG in 2017-2018.

At the time of drawing of this national report, peer review of the National Action Plan is carried out by ENSREG based on the results of stress tests at the Belarusian NPP.

A.1. Conclusions from the Discussion of the sixth National Report of the Republic of Belarus at the Sixth Review Meeting

During the discussion of the sixth National report of the Republic of Belarus on implementation of the Convention the following were noted as areas of good performance:

decommissioning of storage facility Iskra in "JIPNR –Sosny" has been completed;

revision in 2017 of norms and rules on the safety of RW management accounting for IRRS mission recommendations;

the proactive policy to capture international experience through international peer reviews (IRRS mission) and consultation of international experts.

The working group report for the Republic of Belarus noted the following "challenges" in radioactive waste and spent nuclear fuel management:

to complete a legislative and regulatory work on the management of all radioactive waste in the country, accounting for long-term management options;

to engage the clean-up operations of old storage facilities by UE Ekores;

to strengthen and establish a Strategy for waste management including future Spent Fuel.

The following were mentioned as the suggestions for the improvement of safety:

according to the proximity of new NPP commissioning, it is of key importance that a precise schedule be established for providing capacity for NPP waste management in a timely manner (conditioning and storage). Among options, particular attention must be given to the development of the disposal facility so that its availability is ensured according to the planned date (2028). The capacity for this disposal centre to accommodate waste from the clean-up of legacy facilities must be analyzed. Also, the amount of HLW likely to be produced and managed in the country must be assessed and management options identified;

to establish a plan for public consultation with regard to the various RW and SF (HLW) management options and facilities;

to take best efforts to conclude an intergovernmental agreement with the Russian Federation on the conditions of return of spent nuclear fuel of the Belarusian Nuclear Power Plant before the next review meeting on the implementation of the Joint Convention. Thus, it is necessary to work out the volume of the high-level radioactive waste formation, and measures that may be taken in the event of the agreement termination.

Information about the status of the implementation of the recommendations presented in the corresponding sections of the National Report.

A.2. Overview matrix. General Information on the Radioactive Waste and Spent Nuclear fuel Management in the Republic of Belarus

Type of liability	Long-term management policy	Financing of liabilities	Existing practices/facilities	Planned facilities
Spent nuclear fuel	NPP - return to the Russian Federation for processing	Financial funds of the operator	MNPP "Pamir" - SNF sent to Russia for processing in 2010 SNF storage facility "Iskra" decommissioned in 2018	NPP-2 storage pools Cumulative Storage Facility for SNF
Waste of the nuclear fuel cycle	VLLW, LLW and short-lived ILRW - disposal in the surface RWDF long-lived ILRW and HLW - long-term storage/disposal in deep geological formations	Financial funds of the operator	MNPP "Pamir-630D" - SNF sent to Russia for processing without the return of RW	RWDF for VLLW, LLW, short-lived MLRW – in 10 years after NPP commissioning
Radioactive waste not related to the NPP operation	Long-term storage Disposal in the planned RWDF	Financial resources of the operator or the state budget	Specialized enterprise UE "Ekores" - storage of the wide range of RW DWDF – disposal of the waste of Chernobyl origin	RWDF for VLLW, LLW, short-lived ILRW – in 10 years after NPP commissioning
Decommissioning	Operating organization develops the decommissioning program	Special fund Financial funds of the operator State budget	SNF storage facility "Iskra" decommissioned in 2018	No
Spent closed radioactive sources	Return to the manufacturer or long-term storage, disposal Service life extension in justified cases	Paid by the owner State, if the owner is not identified	Specialized enterprise UE "Ekores" - long-term storage Service life extension in justified cases	Similar to the radioactive waste not related to NPP operation

Section B. POLICIES AND PRACTICE

Article 32. Reporting

1. In accordance with the provisions of Article 30, each Contracting Party shall submit a national report to each review meeting of the Contracting Parties on the revision. This report describes the steps taken to implement each of the commitments contained in the Convention. The report also describes the following in relation to each Contracting Party:

i) spent fuel management policy;

ii) spent fuel management practice;

iii) radioactive waste management policy;

iv) radioactive waste management practices;

v) criteria used to define and categorize radioactive waste.

B.1. Spent Fuel Management Policy

In accordance with the Law No. 426-3 of the Republic of Belarus of July 30, 2008, "On the Use of Nuclear Energy", the activity on the nuclear energy use is based on the following principles:

priority of life and health protection of the present and future generations of citizens, environment protection over all other aspects of nuclear energy use;

assurance of prevailing of benefits of the nuclear energy use for citizens and society over harm it may cause;

nuclear and radiation safety assurance;

compensation for harm caused by ionizing radiation or nuclear energy use;

provision of full, credible and timely information on the use of nuclear energy, unless such information contains data which is a state secret, or distribution and (or) provision of which is restricted;

ban of production of nuclear weapons and other nuclear explosive devices.

In addition to the national legislation, spent fuel management policy is also based on the provisions of international treaties entered into by the Republic of Belarus.

In accordance with the provisions of the Agreement between the Government of the Republic of Belarus and the Russian Federation on cooperation in the construction of the nuclear power plant territory of the Republic of Belarus signed in 2011, the spent nuclear fuel used in the reactors of the NPP units, purchased from Russian performing organizations, should be returned to Russia for processing under the terms defined by the governments of the two countries in a separate agreement.

In 2019, the Resolution of the Council of Ministers of the Republic of Belarus No. 558 dated August 22, 2019, approved the Strategy of Spent Nuclear Fuel Management at the Belarusian Nuclear Power Plant, which reflects the nationally agreed positions and plans for managing spent nuclear fuel after discharge from the reactors of units No.1 and No.2 of the Belarusian NPP. The strategy envisages the key organizational aspects of the creation and implementation of a national system for SNF management, the main directions of scientific, technical and practical activities of the management process participants, a phased and adaptive approach to the final stage of the nuclear fuel cycle based on the agreement between the subjects involved in the management process. According to the Strategy, the currently preferred option for the management of SNF of the Belarusian NPP is the SNF reprocessing in the Russian Federation with return to Belarus of the waste included in

a glassy matrix containing radionuclides of cesium-strontium fraction, excluding long-term radionuclides. The corresponding priority activities are defined within the description of the Strategy implementation mechanism.

There is in progress the preparation of a draft Agreement between the Government of the Republic of Belarus and the Government of the Russian Federation on cooperation in the field of transportation of nuclear and radioactive materials.

The draft Agreement provides that the conditions for the return into the Russian Federation irradiated in nuclear reactors Russian-made fuel assemblies for further reprocessing and return to the Republic of Belarus of radioactive substances, materials formed after such reprocessing shall be determined by the Parties in separate agreements that should enter into force prior to the first transportation of the relevant irradiated fuel assemblies of a nuclear reactor.

B.2. Spent Fuel Management Practices

Since August 1985, the mobile nuclear power plant "Pamir-630D" had been tested in the test complex "Iskra" of SSI "JIPNR-Sosny" (at that time – Nuclear Energy Institute of Academy of Sciences of BSSR).

By the decision of the Council of Ministers of the USSR the tests of the mobile nuclear power plant were stopped in November 1987 and the work on its decommissioning was initiated. The fuel cassettes unloaded from the reactor core between 1990 and 2010 were placed in the spent cartridges storage of the pool type as part of the test complex "Iskra".

In 2010 spent fuel was unloaded from the storage facility and dispatched to the Russian Federation under the intergovernmental agreement. Uranium and radioactive waste obtained from processing shall remain in the Russian Federation.

Based on the program adopted by the Council of Ministers of the Republic of Belarus, the SNF storage facilty "Iskra" was decommissioned in 2018.

B.3. Radioactive Waste Management Policies

In accordance with the legislation of the Republic of Belarus and international approaches, the fundamental principles of radiation safety during radioactive waste management include:

assurance of adequate level of workers (personnel) and population protection from RW impact in accordance with justification, standardization and optimization principles;

assurance of adequate level of environment protection from RW impact;

expected exposure levels of future generations conditioned by RW disposal shall not exceed permissible levels of population exposure established by normative legal acts, including technical normative legal acts;

consideration of interconnection between RW generation and management stages;

absence of unreasoned burden for future generations in relation to necessity of RW management safety assurance;

RW generation and accumulation shall be kept to the lowest level practicable;

radiation accidents prevention and reduction of possible impacts on their occurrence.

According to these principles the main directions of the activities are:

maintaining the minimum practicable level of radioactive waste formation;

development of new radioactive waste management technologies and improvement of existing ones;

functioning of the unified State system for radioactive waste accounting and control of the ionizing radiation sources, the state system of nuclear materials accounting and control;

scientific, technical and information support of the activities in the field of radioactive waste management;

development of the instruments for the radioactive waste management;

extension of international cooperation in the area of radioactive waste management regulation.

In accordance with legislation, radioactive waste formed only in the Republic of Belarus may be imported for the purpose of storage or disposal on the territory of the Republic of Belarus.

B.4. Radioactive Waste Management Practices

Work on the management of radioactive waste generated by specialized enterprises with a respective special permit (license) issued by the Ministry for Emergency Situations of the Republic of Belarus:

Specialized Enterprise for Radioactive Waste Management UE "Ekores" (hereinafter – UE "Ekores") performs the works on management of the radioactive waste generated in the result of the use of radioactive substances and materials in different sectors (industry, science, medicine, etc.) with decommissioned closed radioactive sources, and their transportation in the territory of the republic*;*

Republican Specialized Unitary Enterprises "Polesie" (Gomel) and **"Radon"** (Mogilev) of MES perform disposal of unusable courtyards and buildings, decontamination of territories contaminated as a result of Chernobyl NPP disaster, as well as collection, transportation, storage and disposal of the associated radioactive wastes. In addition, the specified enterprises perform arrangement and maintenance of such waste disposal locations.

Scientific Institution "JIPNR-Sosny" performs reprocessing of liquid radioactive wastes formed as a result of research work at the site of the scientific institution.

B.5. Criteria Used to Categorize the Radioactive Waste

In accordance with the Law of the Republic of Belarus No. 198-З dated June 18 "On Radiation Safety", 2019, the radioactive waste - the sources of ionizing radiation used in the course of economic or other activities, the further operation of which is not expected, and containing radionuclides with activity over the levels established by the hygiene standards.

The criteria for classifying waste as radioactive are established by the Sanitary Norms and Rules “Requirements for Ensuring Radiation Safety of Personnel and the Population during Radioactive Waste Management”, approved by the Resolution of the Ministry of Health of the Republic of Belarus No.142 dated December 31, 2015.

In accordance with the mentioned Sanitary Norms and Rules on the physical state, the radioactive waste is divided into liquid, solid and gaseous.

The liquid radioactive waste are liquids that meet the following criteria:

with a known radionuclide composition of liquid waste contaminated with one radionuclide – the excess more than 10 times of the value of the reference level of radionuclide content in drinking water, given in Annex 9 to the Hygiene Standard “Criteria for the Assessment of Radiation Exposure”, approved by the Resolution of the Ministry of Health No. 213 dated December 28, 2012;

in case of contamination of liquid waste with iodine-131 –if the specific activity of iodine-131 exceeds 0.62 Bq/g, but the non-exceedance of the limit dose of the population irradiation should be observed and according to the agreement with the state sanitary inspection bodies;

with a known radionuclide composition of liquid waste contaminated with several radionuclides – if the sum of the ratios of the specific activities of radionuclides to 10-fold value of the corresponding reference levels of radionuclide content in drinking water exceeds 1;

in case if the radionuclide composition of the liquid waste is not known - if the specific activity exceeds:

0.05 Bq/g – for alpha-emitting radionuclides;

0.5 Bq/g – for beta-emitting radionuclides.

The solid radioactive waste are solids that meet the following criteria:

if the radionuclide composition of solid waste contaminated with one radionuclide is known – if the specific activity of the radionuclide exceeds the level of extraction and exemption from control, given in Annex 4 to the Hygiene Standard “Criteria for the Assessment of Radiation Exposure”, approved by the Resolution of the Ministry of Health No. 213 dated December 28, 2012;

with a known radionuclide composition of solid waste contaminated with one radionuclide – if the sum of the ratios of the specific activities of radionuclides to the corresponding levels of exemption from control exceeds 1;

in case if the radionuclide composition of solid waste is unknown - if:

the gamma ray dose rate at 0.1 m from the surface of the waste exceeds 0.001 mSv/h;

specific activity exceeds: 100 Bq/g – for beta-emitting radionuclides; 1 Bq/g – for alpha-emitting radionuclides.

The gaseous RW are gases contaminated with radionuclides, the activity of which exceeds the level of regulated by the permissible discharges of radioactive gaseous substances into the atmosphere, which are established by the bodies performing state sanitary inspection, based on the non-exceedance of the population irradiation dose limit from such radiation facility.

According to the specific activity, the solid radioactive waste is classified into the following categories: very low-level, low-level, intermediate-level and high-level, and the liquid radioactive waste – low-level, intermediate-level and high-level.

The Resolution of the Council of Ministers of the Republic of Belarus No. 198-З dated August 21, 2020 “On the Implementation of the Law of the Republic of Belarus No. 198-З dated June 18, 2019 “On Radiation Safety” establishes the classification of the radioactive waste according to the radiation hazard. According to this classification the radioactive waste by the radiation hazard is divided into four classes:

Class I – radioactive waste of the highest hazard;

Class II – radioactive waste of high hazard;

Class III – dangerous radioactive waste;

Class IV – potentially dangerous radioactive wastes.

In the case when the radioactive wastes according to the different criteria belong to different classes of radiation hazard, the highest class of the radiation hazard is set for them.

The criteria for the radioactive waste classification to radiation hazard classes are shown in Table B.5.1

Table B.5.1. Criteria for classification of radioactive waste according to hazard classes

Radiation hazard class	Criteria for classification of radioactive waste according to hazard classes							
	Radioactive waste category	Gamma ray dose rate at 0.1 m from the surface of the waste, mSv/h;	Level of surface radioactive contamination, part/(sq. cm × min)		Specific activity, Bq/g			
			beta-emitting radionuclides	alpha-emitting radionuclides	tritium*	beta-emitting radionuclides (except tritium)	alpha-emitting radionuclides (except transuranium)	transuranium radionuclides
				Solid radioactive waste				
I	High-level	over 10	over 10^7	over10^6	over10^{11}	over10^7	over 10^6	over10^5
II	Intermediate-level	from 0.3 to 10	from 10^4 to 10^7	from 10^3 to 10^6	from 10^8 to 10^{11}	from 10^4 to 10^7	from 10^3 to 10^6	from 10^2 to 10^5
III	Low-level	from 0.03 to 0.3	from 10^3 to 10^4	from 10^2 to 10^3	from 10^7 to 10^8	from 10^3 to 10^4	from 10^2 to 10^3	from 10^1 to 10^2
IV	Very low-level	from 0.001 to 0.03	from 500 to 10^3	from 50 to 10^2	up to 10^7	up to 10^3	up to 10^2	up to 10^1
				Liquid radioactive waste				
I	High-level	–	–	–	over 10^8	over 10^7	over10^6	over 10^5
II	Intermediate-level	–	–	–	from 10^4 to 10^8	from 10^3 to 10^7	from 10^2 to 10^6	from 10^1 to 10^5
III	Low-level	–	–	–	up to 10^4	up to 10^3	up to 10^2	up to 10^1

Section C. SCOPE OF APPLICATION

Article 3. Scope of application

1. This Convention shall apply to the safety of spent fuel management when the spent fuel results from the operation of civilian nuclear reactors, except for spent fuel held at reprocessing facilities as part of spent fuel management.

2. This Convention shall also apply to the safety of radioactive waste management when the radioactive waste results from civilian applications. However, this Convention shall not apply to waste that contains only naturally occurring radioactive materials and that does not originate from the nuclear fuel cycle, unless it constitutes a disused sealed source or it is declared as radioactive waste for the purposes of this Convention by the Contracting Party.

3. This Convention shall not apply to the safety of management of spent fuel or radioactive waste within military or defense programs, unless declared as spent fuel or radioactive waste for the purposes of this Convention by the Contracting Party. However, this Convention shall apply to the safety of management of spent fuel or radioactive waste within military or defense programs, if and when such materials are transferred permanently to and managed within exclusively civilian programs.

4. This Convention shall also apply to discharges as provided for in Articles 4, 7, 11, 14, 24 and 26.

The provisions of the Joint Convention applies to the following issues in the Republic of Belarus:

safety of management of radioactive waste and spent nuclear fuel generated during operation on the Belarusian NPP;

safety of management of the radioactive waste resulting from the use of radioactive materials in industry, medicine, scientific research, education and other economy branches on the territory of the Republic of Belarus;

safety of management of disused sealed sources;

safety of radioactive waste storage facilities located on the territory of the Republic of Belarus at former locations of the USSR Military Forces;

safety of management of radioactive waste resulting from the elimination of consequences of the Chernobyl NPP disaster.

Section D. INVENTORIES AND LISTS

Article 32. Reporting

32-2. This report shall also include:

i) a list of the spent fuel management facilities subject to this Convention, their location, main purpose and essential features;

ii) an inventory of spent fuel that is subject to this Convention and that is being held in storage and of that which has been disposed of. This inventory shall contain a description of the material and, if available, give inforation on its mass and general level of activity;

iii) a list of the radioactive waste management facilities subject to this Convention, their location, main purpose and essential features;

iv) an inventory of radioactive waste that is subject to this Convention that is being held in storage at radioactive waste management and nuclear fuel cycle facilities and waste that has been disposed of as well as waste that has resulted from past practices. This inventory shall contain a description of the material and other appropriate information available, such as volume or mass, activity and specific radionuclides;

v)a list of nuclear facilities in the process of being decommissioned and the status of decommissioning at those facilities.

D.1. List Spent Fuel Management Facilities

Spent nuclear fuel storage facility “Iskra”

Spent fuel storage facility (complex of spent nuclear fuel storage and management systems) in SSI "JIPNR - Sosny" was decommissioned in 2018.

Belarusian NPP

On November 2, 2013, the Decree of the President of the Republic of Belarus No. 499 “On the Construction of the Belarusian Nuclear Power Plant”.

The planned date of commissioning into commercial operation:

first power unit – 2021;

second power unit – 2022.

D.2. List of Radioactive Waste Management Facilities

D.2.1 Specialized Enterprise for Radioactive Waste Management UE “Ekores”

Specialized enterprise for radioactive waste management UE “Ekores” is located 2 km away from Minsk city. The facility was created in 1963 to locate radioactive waste from the activities of the research reactor of the former Nuclear Energy Institute of the Academy of Sciences of BSSR. Further, being the only enterprise of its kind, the facility provided the reception of a wide range of radioactive waste resulting from the use of radioactive isotopes in the territory of the Republic of Belarus.

Initially, the radioactive waste was placed in special structures – typical storage facilities, which are the monolithic structures (tanks) made of reinforced concrete. Similar constructions in the CIS and Eastern European countries are referred to near-surface "Radon" type storages. The placement of radioactive waste in storage facilities was carried out in the manufacturer's packaging without pre-sorting and

processing. In total about 2,000 m^3 of radioactive waste were placed in storage facilities of this type.

The storage facility of the well-type is used for the storage of the disused sealed radionuclide sources from 2003. This storage is equipped with 11 wells to load sealed radionuclide sources of different radionuclide composition.

Since 2013 storage facility for the conditioned solid RW is under operation with total capacity 3.06 thousand cubic m, divided into four modules. Before placing in the storage facility, RW is sorted and packed in special protective containers.

Currently the following are located in the site of facility area:

two preserved "old storages" that were in operation from 1963 to 1979;

two near-surface storages for solid waste, operated from 1977 to 2013;

storage of sealed radionuclide sources (built in 2003);

special laundry (built and operated since 1977, reconstructed in 2013);

facility for reprocessing of the radioactive waste from laboratories (built in 2013);

storage for conditioned solid radioactive waste (built in 2013).

Annually UE "Ekores" accepts 3 to 10 tons of solid radioactive waste and up to 3 thousand of disused sealed radionuclide sources (including radioisotope smoke detectors, calibration and control sources for dosimetry equipment).

Information about the amount of the solid radioactive waste and spent sealed radionuclide sources received by UE "Ekores" for the period from 2017 to 2019, is presented in Appendix 1.

D.2.2 Unit for Processing Liquid Radioactive Waste at the Scientific Institution "JIPNR-Sosny"

Unit for processing liquid radioactive waste (commissioned in 2012) is located in the territory of the SSI "JIPNR-Sosny", located 1.2 km away from Minsk.

The unit is designed for processing liquid radioactive waste generated in the result of research work at the SSI "JIPNR-Sosny".

The unit is designated for processing of low- and intermediate-level liquid radioactive waste.

The unit consists of the following components:

liquid radioactive waste reception unit;

liquid radioactive wastes purification and concentration unit;

cementing unit;

temporary storage unit.

Liquid radioactive waste, which was stored in the processing facility as of March 01, 2016, was conditioned during the decommissioning of the storage facility "Iskra" (complex of spent nuclear fuel storage and management systems) in 2017.

The storage tanks of the unit as of September 01, 2020 do not contain liquid radioactive waste.

D.2.3 Decontamination Waste Disposal Facilities

The decontamination solid waste, formed as a result of elimination of the Chernobyl disaster consequences, is disposed in the decontamination waste disposal facilities (DWDF). By engineering solutions the DWDF are divided into three categories depending on the level of specific activity or surface contamination of decontamination waste.

DWDF of the first category (hereinafter – DWDF-I) is a special engineering structure (tank) designed for disposal of decontamination waste with specific activity of Cs-137 from 100 kBq/kg and higher, ensuring reliable isolation due to the use of special engineering protective barriers and hydrotechnical arrangement, equipped with a system of permanent monitoring of its status and impacts to the environment. Currently, there is one DWDF of this type in the Republic of Belarus – "Khatky". It is located in the southern part of the exclusion zone in Polesie State Radioecological Reserve, several kilometers from the border with Ukraine, and by construction it represents 9 trenches equipped with concrete cells (3×3×3 m). As of today, 300 cells, in which (according to reports) 3088 tons of radioactive meat were buried in 1991 (preserved, embanked). The total activity of the waste at the disposal time was 74.5×10^{10} Bq (20.14 Cu).

DWDF of the second category (hereinafter - DWDF-II) is an engineering construction for subsurface decontamination waste disposal with specific activity of Cs-137 content 1.0 kBq/kg to 100 kBq/kg, preventing the spread of radionuclides in the environment due to use of simple protective clay barriers. DWDF-II equipment allows monitoring its condition and the impact on the environment. There are 9 disposal facilities of this type: in Mogilev region – 4, in Gomel region – 4, in Brest region – 1. A summary of the inventory of decontamination waste of Chernobyl origin at DWDF-II are shown in Appendix 2.

DWDF of the third category (hereinafter – DWDF-III) is the near-surface disposal facilities for decontamination waste created in the initial post-accident period, usually built without projects and without taking into account the hydrogeological restrictions, require additional measures for engineering arrangement and monitoring of their condition and the impact on the environment. Almost all of them were created in extreme conditions and are equipped, as a rule, in the former open pits, gullies, depressions, sometimes specially dug trenches or on flat ground. Only three of them have a base protection in the form of clay layer or a polymer film, 11 of them have wells for the control of groundwater contamination.

Collection, transportation and disposal of waste resulting from the territory cleaning, as well as arrangement, maintenance and radiation control of the DWDF are carried out by specialized companies: "Polesie", "Radon" and "Brestoblselstroy" in the Brest region.

As of September 01, 2020 there are 86 DWDFs in the Republic of Belarus, including:

Brest region – 3 DWDFs (DWDF-II - 1, DWDF-III – 2);

Gomel region – 79 DWDFs (DWDF-I - 1, DWDF-II – 4 DWDF-III – 74);

Mogilev region – 4 DWDF-II.

To optimize the disposal system and the cost of monitoring, maintenance, support and service within the State program on the elimination of the Chernobyl catastrophe consequences for 2011-2015 and for the period up to 2020, the works on the decontamination waste compaction are carried out from 2012 in the Gomel region by moving them to other DWDFs followed by the elimination of some DWDF- III. Territories that were released in the result of the works, have contamination levels that do not exceed those in the adjacent areas. These land plots are transferred to the jurisdiction of the local authorities of the corresponding districts.

The project of the State program on the elimination of the Chernobyl disaster consequences for 2021-2025, pursuant to the requirements of chapter 4 of the Law of the Republic of Belarus No. 385-З dated May 26, 2012 "On the legal regime of the territories affected by the radioactive contamination in the result of the Chernobyl disaster" contains a plan to continue work on implementation of measures on DWDF maintenance, reduction of their number by moving the decontamination waste from the disposal facilities with small volumes of waste. The envisaged measures will eliminate the spread of radionuclides into the environment.

D.2.4 Radioactive Waste Storage Facilities at the Places of the Former Location of the Soviet Troops

Currently the only radioactive waste storage facility, located at the former site of the Soviet military units deployment, in the Republic of Belarus is the facility "Gomel-30".

RWSF "Gomel-30" is located in Rechitsa district of Gomel region in the territory of the site under the authority of the Ministry of Internal Affairs of the Republic of Belarus. The facility was built in 1964 in the place of the military units deployment to place the spent radionuclide sources of man-made origin.

RWSF "Gomel-30" is a well-type facility. The outer diameter of the construction is 1800 mm, height – 2500 mm. The construction of the walls, foundation plate and cover are made of precast concrete elements 150 mm thick. The base plate and the walls have a 4 mm thick metal lining made of steel. Inside the building the metal surface and the outside concrete surface are covered with bitumen insulation in 2 layers. A waterproof layer made of pugged clay is applied along the perimeter of the outer contour. The inner space of the RWSF, where the radiation sources are located, is cemented.

Currently, there is no needs for urgent measures for the disposal of the facility, its safety is under monitoring. The territory of the storage facility is guarded by the Ministry of Internal Affairs, the unauthorized access is not available.

The decision on the subsequent work with RWSF "Gomel-30" will be made based on the periodic evaluation of the facility safety.

D.2.5 Belarusian NPP

Management system for radioactive waste of the Belarus NPP is intended for collection, processing (including conditioning), transportation and storage of radioactive waste generated during nuclear power plant operation.

During operation the Belarusian NPP, gaseous, liquid and solid radioactive wastes will be generated. These wastes mainly belong to the categories of very low-, low- and intermediate-level waste. The amount of high-level operational RW will be about 0.9% of the total amount of the waste. Also during the operation, very low-level waste with the minimum content of radionuclides for the release from control is generated, which are to be managed as RW before the release from control.

Expected average annual volume for the production of the solid radioactive waste generated with regard to its processing per one nuclear power plant unit will be:

28 cubic meters (140 barrels) - for very low-level radioactive waste (48.3 percent) including 22.5 cubic meters (113 barrels) - for very low-level waste with minimum radionuclides content (38.8 percent); 27 cubic meters (135 barrels) - for low-level RW (46.5 percent); 2.5 cubic meters (25 barrels) - for intermediate-level RW (4.3 percent); 0.5 cubic meter - for high-level RW (0.9 percent).

The expected volume of the solidified liquid radioactive waste per year per NPP unit is 33 cubic meters.

The generation of 10860 cubic meters of solid radioactive waste of different categories and 60 cubic meters of high-level radioactive waste is forecast during the service life of the nuclear power plant (60 years).

During the decommissioning of the nuclear power plant the forecast volume of the very low level, low-level and intermediate-level solid RW during the dismantling of one power unit will be 2050 cubic meters, and of high-level solid RW - 85 cubic meters. When dismantling two nuclear power units the mentioned volumes will be 4100 and 170 cubic meters respectively.

Section E. LEGISLATIVE AND REGULATORY FRAMEWORK

E.1. Implementation Measures

Article 18. Implementation measures

Each Contracting Party, within its national law, takes legislative, regulatory and administrative measures and other steps required for the implementation of its obligations under this Convention.

Nuclear and radiation safety regulatory requirements in the field of nuclear and radiation safety are established by the laws of the Republic of Belarus, decrees of the President of the Republic of Belarus, resolutions of the Council of Ministers of Belarus, documents of the government bodies, as well as accepted international obligations.

The work on improving the legislative and regulatory infrastructure in the field of nuclear and radiation safety, including with regard to the safe management of radioactive waste and spent nuclear fuel, is ongoing in the Republic of Belarus.

The Resolution of the Council of Ministers of the Republic of Belarus No. 558 dated August 22, 2019 approved the Strategy for the management of spent nuclear fuel of the Belarusian NPP.

The strategy for the management of SNF of the Belarusian NPP envisages the key organizational aspects of the creation and implementation of a national system for the SNF management of the Belarusian NPP, the main directions of scientific, technical and practical activities of the management process participants, a phased and adaptive approach to the final stage of the nuclear fuel cycle based on the agreement between the subjects involved in the management process.

The strategy defines a preferred option and alternative options for the SNF management of the Belarusian NPP, determines the terms of the priority measures for its implementation, as well as financing sources for the safe SNF management of the Belarusian NPP.

When developing the Strategy, the international scientific and practical experience of SNF management within the declared national strategies, modern approaches and solutions of SNF related problems, technical progress prospects, the availability of the services provided at the international market for the SNF management, and the conditions of their provision, the economic and technological complexity of the implementation of programs for the direct geological disposal of SNF were taken into account. Also the possibility of periodic review of the national system for the SNF management or its adjustments for more in-depth study of the issue, the accumulation of the practical experience, changes in the economic and environmental situation, the development of technology was also evaluated.

The overall coordination of the implementation of this Strategy, as well as monitoring the progress of the separate events is ensured by the Ministry of Energy of the Republic of Belarus.

Based on the recommendations and suggestions of the IAEA mission to assess the national regulatory infrastructure of the Republic of Belarus (IRRS mission) and the IAEA mission to review the emergency preparedness and response of the Republic of Belarus to nuclear and radiological emergencies (EPREV mission), draft amendments to the Strategy for the management of radioactive waste of the

Belarusian Nuclear Power Plant, approved by the Resolution of the Council of Ministers of the Republic of Belarus No. 460 dated June 2, 2015 is being developed.

The Republic of Belarus has begun the work on the development of the unified strategy for radioactive waste management, which determines the main directions for the safe activities on management of the radioactive waste, formed in all sectors of economic activity.

E.2. Legislative and Regulatory Framework

Article 19. Legislative and regulatory framework

1.Each Contracting Party shall establish and maintain a legislative and regulatory framework to govern the safety of spent fuel and radioactive waste management.

2.This legislative and regulatory framework shall provide for:

i) the establishment of applicable national safety requirements and regulations for radiation safety;

ii) a system of licensing of spent fuel and radioactive waste management activities;

iii) a system of prohibition of the operation of a spent fuel and radioactive waste management facility without a license;

iv) a system of appropriate institutional control, regulatory inspection and documentation and reporting;

v)the enforcement of applicable regulations and of the terms of a license;

vi) a clear allocation of responsibilities of the bodies involved in the different steps of spent fuel and radioactive waste management.

3.When considering whether to regulate radioactive materials as radioactive waste, Contracting Parties shall take due account of the objectives of this Convention.

Legal regulation in the field of nuclear and radiation safety has a hierarchical structure: it provides for the subordination of documents of lower legal force with to the corresponding requirements of documents of higher legal force and is carried out based on:

laws of the Republic of Belarus;

regulatory legal acts of the President of the Republic of Belarus;

decisions of the Government of the Republic of Belarus;

regulatory legal acts of the authorized republican government bodies that carry out state regulation of the activities to ensure safety in the nuclear energy use.

rules and regulations in the field of nuclear and radiation safety, hygiene standards, Sanitary Norms and Rules, mandatory for compliance with technical regulations in the field of technical regulation and standardization, establishing the requirements in the field of radiation safety for the objects of technical regulation and standardization objects;

other technical regulatory legal acts, including guidance documents and guidelines.

Since the previous National Report the Law of the Republic of Belarus “On Radiation Safety” was adopted in new revision, being the main element of legislation, establishing the radiation safety requirements, including during radioactive waste management. The document came into force on June 27, 2020. The Law includes a number of provisions prepared in view of the updated IAEA requirements in the field of radiation safety, as well as the IRRS mission recommendations for a comprehensive assessment of a regulatory infrastructure for nuclear and radiation safety, held in the Republic of Belarus in October 2016.

Article 44 of the Law establishes that the main directions for the safe and cost-effective management of radioactive waste are defined by the Strategy for radioactive waste management, approved by the Government.

The Law also establishes the authority of the Government to determine the state administration body in the field of radioactive waste management, the main tasks of which include:

to create and ensure the operation of the system for long-term storage and disposal of radioactive waste;

to submit suggestions on the procedure and sources of funding for the radioactive waste management to the Government;

to organize research and development activities in the field of radioactive waste management;

other powers in accordance with the Law and other legislative acts.

Within the framework of the Law provisions, by the Order of the Prime Minister of the Republic of Belarus No. 151r dated July 29, 2020, an interdepartmental working group was created to develop suggestions on determining the state administration body in the field of radioactive waste management.

This interagency working group operates under the leadership of the Deputy Prime Minister of the Republic of Belarus. It is composed of representatives (including senior management) of 11 republican government administration bodies.

The interdepartmental working group should develop the following suggestions:

on determining the state administration body in the field of radioactive waste management, its functions and powers, organizational and personnel structure;

on creation of an infrastructure ensuring the implementation of the objectives set for such state administration body, including the following:

financial and economical feasibility of creation of the infrastructure for radioactive waste management, including ensuring the implementation of the tasks set for the state administration body in the field of radioactive waste management;

to establish a national operating body for radioactive waste management.

In the legal system of the Republic of Belarus, the requirements for the management of spent nuclear materials, operational radioactive waste are also defined by the Law of the Republic of Belarus “On the use of nuclear energy”.

The Law of the Republic of Belarus “On sanitary and epidemiological welfare of the population” No. 340-З dated January 7, 2012 establishes the legal and organizational framework for the prevention of adverse effects on the human body from environmental factors of the habitat to ensure sanitary and epidemiological welfare of the population. In accordance with Article 16 of the Law the activities associated with the production, storage, use, transportation and disposal of radioactive substances and other ionizing radiation sources are subject to the state sanitary and hygienic expertise, conducted by bodies and agencies exercising the state sanitary control. Obtaining a positive sanitary and hygienic conclusion is required prior to the implementation of such activities.

Management of the radioactive waste of Chernobyl origin is regulated by the Law No. 385- dated May 26, 2012 “On the legal regime of the territories affected by the radioactive contamination resulting from the Chernobyl disaster”.

Relations on licensing in the field of nuclear energy and ionizing radiation sources use, including radioactive waste and spent nuclear materials management are regulated by the Decree of the President of the Republic of Belarus No. 450 dated September 1, 2010 “On licensing certain types of activities”.

The Decree of the President of the Republic of Belarus No. 62 dated February 16, 2015 “On ensuring safety during construction of the Belarusian Nuclear Power Plant” establishes a specific procedure for the organization and supervision of safety during the construction and commissioning of the Belarusian Nuclear Power Plant, which allows the supervising bodies to continuously control (supervise) in their fields with the implementation of sanctions and other enforcement measures. This Decree also defines the list of state administration bodies and organizations supervising safety during the construction and commissioning of the Belarusian Nuclear Power Plant.

An important change in the regulatory framework for licensing of works in the field of nuclear energy and ionizing radiation sources use during this period was the adoption of the Decree of the President of the Republic of Belarus No. 70 dated February 18, 2019 “On amendment to the Decree of the President of the Republic of Belarus”, amending the Decree of the President of the Republic of Belarus No. 62 dated February 16, 2015. The document contains a number of measures aimed at improvement of the licensing activities in the field of nuclear energy use. In particular:

a licensing authority determines the list of the work and services provided by the operator organizations affecting the safety, including the construction of facilities, the implementation of which requires a license;

a licensing authority determines the list of technological equipment for nuclear energy facilities, the design and manufacture of which require a license;

a licensing authority is granted with the right to initiate changes to the special licensing requirements and terms specified in the license;

based on the volume of documents submitted by the applicant for a license, the licensing authority shall establish a schedule for assessment and (or) examination of compliance of the applicant’s capabilities with the license requirements and terms, including the examination of the documents substantiating the nuclear and radiation safety;

it is determined to carry out public hearings at the stage of decision-making on the control of the activities in the field of the safe use of nuclear energy. This provision was introduced pursuant to the IAEA recommendations of the IRRS mission.

In furtherance of this Decree the Resolution of the Ministry for Emergency Situations No. 35 dated April 25, 2019 “On the list of works (services) and equipment for nuclear energy facilities” establishes:

a list of the works and services provided to the operating organizations, including the construction of facilities in the field of nuclear energy use, which affect the safety, the implementation and the provision of which requires a special permit (license) to carry out activities in the field of nuclear energy and ionizing radiation sources use;

a list of technological equipment for nuclear energy facilities, the design and manufacture of which requires a special permit (license) to carry out activities in the field of nuclear energy and ionizing radiation sources use.

The Resolution of the Council of Ministers No. 258 dated April 24, 2019 approved the Regulations on public hearings concerning regulation of safety of the Belarusian nuclear power plant.

Requirements to the radioactive waste management at the radiation facilities are established by specific sanitary and epidemiological requirements to the maintenance and operation of radiation facilities, approved by the Resolution of the Council of Ministers of the Republic of Belarus No. 168 dated March 24, 2020.

Regulations on the procedure of the state system for accounting and control of nuclear materials of the Republic of Belarus was approved by the Resolution of the Council of Ministers of the Republic of Belarus No. 224 dated March 17, 2014. The system for accounting and control of nuclear materials in the Republic of Belarus applies to nuclear materials produced, used and stored in the territory of the Republic of Belarus, as well as the activities on the use of nuclear energy.

The composition and content of the documents justifying nuclear and radiation safety during the activities in the field of nuclear energy and ionizing radiation use, including decontamination, recycling, storage and disposal of the radioactive waste, locating, construction, decommissioning of radioactive waste storage facilities, was defined by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 46 dated August 17, 2018.

Goals and principles of safe radioactive waste management, as well as the overall radioactive waste management requirements to ensuring safety in radioactive waste management are established by the standards and rules on nuclear and radiation safety “Safety of Radioactive Waste Management. General Provisions”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 47 dated September 28, 2010.

The Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 26 dated December 6, 2018 approved the norms and rules for ensuring nuclear and radiation safety “Safe nuclear materials management. Requirements for accounting and control of nuclear materials”.

The requirements to the safety of radioactive waste disposal are established by the rules and regulations to ensure nuclear and radiation safety “Disposal of radioactive waste. Principles, criteria and basic safety requirements”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 7 dated January 20, 2012.

The Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 47 dated July 16, 2019, approved the rules and regulations to ensure nuclear and radiation safety “Acceptability criteria for the disposal of radioactive waste”. This document establishes general acceptability criteria for radioactive waste for disposal, the requirements for the development and establishment of the acceptability criteria for RW for disposal in a specific RW disposal facility, requirements to the confirmation of the RW conformity with acceptability criteria for disposal, the requirements for the passport on the packaging (batch) of RW transferred for disposal. The document establishes that RW transferred for disposal

must comply with the general acceptability criteria for disposal. These criteria are established for the purposes of safe RW disposal and define the requirements sufficient for their transfer to the organization operating RWDF.

The Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 25 dated February 22, 2019, approved the norms and rules for ensuring nuclear and radiation safety "Requirement to ensure safety when decommissioning radioactive waste disposal facilities". These regulations and rules establish the requirements to ensure safety when decommissioning radioactive waste storage facilities at all stages of their life cycle.

Safety requirements implemented in the design and operation of systems for radioactive waste management at nuclear power plants are established in the rules and regulations to ensure nuclear and radiation safety "Safety regulations for the management of radioactive waste of nuclear power plants", approved by the Resolution the Ministry for Emergency Situations of the Republic of Belarus No. 43 dated October 12, 2017.

The rules to ensure the safe transportation of dangerous goods by road in the Republic of Belarus, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 61 dated December 08, 2010 define the general requirements and basic conditions to ensure safe transportation of dangerous goods by road, regulate relations between participants of the dangerous goods transportation.

The general requirements and basic conditions to ensure safe transportation of dangerous goods by rail, as well as the responsibilities of the subjects of dangerous goods transportation are established by the Rules to ensure safe transportation of dangerous goods by rail in the territory of the Republic of Belarus. The rules are approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 73 dated December 28, 2012.

The requirements for the safety of spent fuel are described in the Rules for safety during storage and transportation of nuclear fuel at spent nuclear fuel storage and management complexes and the Rules for safety during storage and transportation of nuclear fuel at nuclear power facilities, which were approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus dated December 30, 2006.

Safety requirements specific for spent nuclear fuel dry storage facilities are established by TCP 545-2014 "Ensuring Safety of Spent Nuclear Fuel Dry Storage Facilities". The document was approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 26 dated September 9, 2014.

The Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 64 dated December 13, 2010, approved the norms and rules for ensuring nuclear and radiation safety "Requirements to the structure and content of the report on the substantiation of the safety at the radioactive waste management facilities". The rules establish the required list of data sufficient to substantiate the radiation safety of the population, personnel and the environment during operation of the facilities for radioactive waste management and after their closure.

In the area of physical protection of the nuclear energy facilities and ionizing radiation sources in the Republic of Belarus, the following regulatory legal acts are in force, including technical regulatory legal acts:

The Resolution of the Council of Ministers of the Republic of Belarus No. 385 dated June 14, 2019 “On physical protection of nuclear energy use facilities”. The document defines the terms and procedures for ensuring and maintaining physical protection of nuclear energy facilities for the operating organizations and during transportation of the nuclear materials. It also reflects the aims and objectives of ensuring and maintaining the physical protection system implemented by the regulators and operators, main authorities of the subjects dealing nuclear material entities (operators, suppliers, shippers, and receivers), information exchange for nuclear material management. In order to ensure safety during the supply of fresh nuclear fuel, the requirements are established for the physical protection of nuclear energy facilities taking into account the activities related to the importation of the nuclear material;

rules and regulations to ensure nuclear and radiation safety “Conceptual design of physical protection system of nuclear energy facilities” approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 60 dated November 16, 2019 set the basic principles, requirements and criteria for the conceptual design of a physical protection system of nuclear energy facilities by the operator in the Republic of Belarus;

TCP No. 389-2012 “Rules of physical protection of radioactive sources of ionizing radiation” approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus, the Ministry of Internal Affairs of the Republic of Belarus, the State Security Committee of the Republic of Belarus No. 31/142/20 dated May 18, 2012 establishes the requirements to ensure the safety and physical protection of ionizing radiation sources;

TCP 505-2013 “Procedure of interaction in the systems of physical protection of nuclear facilities” approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus, the Ministry of Internal Affairs of the Republic of Belarus, the State Security Committee of the Republic of Belarus No. 70/553/55 dated December 19, 2013, establishes the organizational structure of management and interactions in the system of physical protection of a nuclear energy facility, the main tasks of the interaction, functions of the facility administration, its security, guard units and their interaction, distribution of responsibilities in the management of the physical protection system, the rights and obligations of the parties, as well as cooperation with other stakeholders;

TCP 531-2014 “Procedure for the analysis of vulnerability of nuclear facilities and evaluation of physical protection system effectiveness”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus, the Ministry of Internal Affairs of the Republic of Belarus No. 8/110 dated April 7, 2014 establishes the requirements for the procedure to analyze vulnerability of nuclear energy facilities and evaluating effectiveness of the physical protection system.

In the field of spent nuclear fuel and radioactive waste management the following sanitary rules and regulations of the Ministry of Health of the Republic of Belarus also apply:

Sanitary rules and norms 2.6.6.8-8-2004 “Management of decontamination waste resulting from the work on the elimination of the Chernobyl disaster consequences (SRMDW-2004)”, approved by the Resolution of the Chief State Sanitary Doctor of the Republic of Belarus No. 121 dated November 23, 2004;

Sanitary rules and norms 2.6.1.13-60-2005 “Hygienic Requirements for Ensuring Radiation Safety of Personnel and the Public during Transportation of Radioactive Materials (Substances)”, approved by the Resolution of the Chief State Sanitary Doctor of the Republic of Belarus No. 284 dated December 30, 2005.

Sanitary norms, rules and hygienic standards “Hygienic Requirements for the Design and Operation of Nuclear Power Plants”, approved by the Resolution of the Ministry of Health of the Republic of Belarus No. 39 dated March 31, 2010.

Sanitary Norms and Rules "Radiation Safety Requirements" and the Hygienic standard "Criteria for Radiation Exposure Assessment", approved by the Resolution of the Ministry of Health of the Republic of Belarus No. 213 dated December 28, 2012.

Sanitary Norms and Rules "Requirements for Ensuring the Radiation Safety of Personnel and the Public during Activities on the Nuclear Energy Use and Ionizing Radiation Sources", approved by the Resolution of the Ministry of Health of the Republic of Belarus No. 137 dated December 31, 2013.

Sanitary Norms and Rules “Requirements for Ensuring Radiation Safety of Personnel and the Public when Radioactive Waste Management”, approved by the Resolution of the Ministry of Health of the Republic of Belarus No. 142 dated December 31, 2015.

The documents referred to in this section make up a regulatory framework to ensure protection and safety of the population and workers from the harmful effects of ionizing radiation, contain the requirements for the basic safety standards in terms of occupational radiation protection and protection of the population, establish licensing procedures for the spent nuclear fuel and radioactive waste management activities.

The list of regulatory legal acts in the field of nuclear and radiation safety, governing the spent nuclear fuel and radioactive waste management is presented in Appendix 3.

E.2.1. Licensing of the Activities in the Field of Spent Fuel and Radioactive Waste Management

In accordance with the Decree of the President of the Republic of Belarus “On licensing of certain types of activities” No. 450 dated September 1, 2010, a special permit (license) from the authorized public authority is required to carry out activities in the field of nuclear energy and ionizing radiation sources use. The licensing authority is the Ministry for Emergency Situations of the Republic of Belarus.

As a structural subdivision of the Ministry for Emergency Situation Gosatomnadzor has been delegated the functions of organizing the licensing process for activities in the field of the use of nuclear energy and sources of ionizing radiation.

The licensed activity in the part of the radioactive waste and spent fuel management consists of the following work and services:

1. For activities in the field of nuclear energy use:

design, location, construction, operation, decommissioning (or a selection from the specified list of works) of storage facilities for nuclear materials;

management of nuclear materials, nuclear fuel, spent nuclear materials, spent nuclear fuel, operational radioactive waste (or a selection from the list of objects).

2. For activities on radioactive waste management:

decontamination, processing, storage, disposal (or a selection from the list of work) of radioactive waste;

design, location, construction, decommissioning (or a selection from the specified list of works) of storage facilities for radioactive waste.

These activities without license are illegal.

Safety examination activities in the field of nuclear energy and ionizing radiation sources use are also subject to licensing.

Before making a decision on licensing, Gosatomnadzor evaluates and assigns the examination of the compliance of the capabilities of the license applicant (licensee) with the licensing requirements and terms. Examination is appointed in case when special knowledge in science, technology and other fields is required.

The procedure for the examination of documents justifying the nuclear and radiation safety in carrying out activities in the field of nuclear energy and ionizing radiation sources use is defined by the Resolution of the Council of Ministers of the Republic of Belarus No. 1781 dated December 7, 2010.

The period for the evaluation or examination shall not exceed one year for the activities in the field of nuclear energy use, and in the field of radioactive waste management – 30 days. The specified period is established by the Decree of the President of the Republic of Belarus No. 450 dated September 1, 2010 “On licensing of certain types of activities, but at the same time the changes to the Decree of the President of the Republic of Belarus No. 62 dated February 16, 2015, allow to extend the period depending on the amount of the presented documents.

The license is issued only in case of a positive conclusion on the results of the assessment and (or) examination of compliance of the capabilities of the license applicant (licensee) with the licensing requirements and conditions.

During the period since the previous National Report, an important change in the regulatory basis for the licensing of the work in the field of nuclear energy and ionizing sources use, was the adoption of the Decree of the President of the Republic of Belarus No. 70 dated February 18, 2019, which introduces amendments to the Decree of the President of the Republic of Belarus No. 62 dated February 16, 2015 “On ensuring safety during construction of the Belarusian Nuclear Power Plant, which provided Gosatomnadzor with the right to set dates for the evaluation and (or) examination of compliance of the license applicant’s capabilities to conduct activity in the field of nuclear energy and ionizing radiation sources use with the licensing requirements and conditions, including the examination of the documents justifying nuclear and radiation safety, based on the volume of documents submitted by the license applicant. To implement the Decree the Resolution of the Ministry for

Emergency Situations of the Republic of Belarus No. 35 dated April 25, 2019 was adopted and defines the following:

list of the works and services provided to the operator organizations, including the construction of facilities, in the field of nuclear energy use, which affect the safety, the implementation and the provision of which requires a special permit (license) to carry out activities in the field of nuclear energy and ionizing radiation sources use;

list of technological equipment for nuclear energy facilities, the design and manufacture of which requires a special permit (license) to carry out activities in the field of nuclear energy and ionizing radiation sources use.

The Decree also provided the Ministry for Emergency Situations of the Republic of Belarus with the right to make changes and (or) additions to the special licensing requirements and terms, details of which are indicated in the special permit (license) to carry out activities in the field of nuclear energy and ionizing radiation sources use.

E.3. State Administration and Regulation of Nuclear and Radiation Safety

Article 20. Regulatory body

1. Each Contracting Party shall establish or designate a regulatory body entrusted with the implementation of the legislative and regulatory framework referred to in article 19, and provided with the corresponding authority, competence and financial and human resources to fulfill its assigned responsibilities.

2. Each Contracting Party shall, in accordance with its legislative and regulatory framework, take the appropriate measures to ensure the effective independence of the regulatory functions from other functions in cases where organizations are involved in both spent fuel and radioactive waste management, and their regulation.

According to Article 7 of the Law of the Republic of Belarus "On Radiation Safety", the state control in the field of radiation safety is carried out by the President of Belarus, the Council of Ministers of the Republic of Belarus, the Ministry for Emergency Situations of the Republic of Belarus, the Ministry of Health of the Republic of Belarus, Ministry of Natural Resources and Environmental Protection of the Republic of Belarus, the Ministry of Defense, Ministry of Internal Affairs, State Border Committee, local executive and administrative bodies, other state bodies and organizations within their competence as defined by the legislation (see Appendix 4).

According to Article 6 of the Law "On Nuclear Energy Use", the public administration in the field of nuclear energy use is carried out by the Ministry of Energy of the Republic of Belarus, the Ministry for Emergency Situations of the Republic of Belarus, as well as other republican bodies of state administration and other state organizations, authorized by the President of the Republic of Belarus.

President of the Republic of Belarus in the field of nuclear and radiation safety:

determines the unified state policy and exercises other powers in accordance with the Constitution of the Republic of Belarus, this Law and other legislative acts.

Council of Ministers of the Republic of Belarus in the field of nuclear and radiation safety within its competence:

ensures the implementation of the unified state policy;

approves state programs in the field of radiation safety;

approves the Regulations on the National Commission of Belarus on Radiation Protection at the Council of Ministers of the Republic of Belarus and its composition;

Ministry for Emergency Situations of the Republic of Belarus in the field of radiation safety:

implements the state policy;

coordinates activities of the republican state administration bodies and other state bodies (organizations);

ensures implementation of state supervision in the field of radiation safety, with the exception of the state supervision in respect of ionizing radiation sources used for defense purposes, the treatment of which is not the kind of activity in the use of ionizing radiation sources, subject to licensing;

approves the draft regulatory legal acts in the field of radiation safety, including mandatory technical normative legal acts, adopted (approved) by other republican state bodies, except for cases stipulated by the legislative acts;

establishes the procedure, terms of sending and collecting information about radiation accidents and incidents, except for radiation accidents and incidents at the facilities belonging to the Armed Forces of the Republic of Belarus and the transport forces of the Republic of Belarus;

implements international cooperation;

implements other functions in accordance with this Law and other legislation acts.

Department for Nuclear and Radiation Safety of the Ministry for Emergency Situations of the Republic of Belarus in the field of radiation safety:

carries out the state supervision in the field of radiation safety, with the exception of the state supervision in respect of ionizing radiation sources used for defense purposes, the treatment of which is not the kind of activity in the use of ionizing radiation sources, subject to licensing;

develops drafts of normative legal acts, including drafts of technical normative legal acts in the field of ensuring nuclear and radiation safety;

conducts within the framework of the licensing process the compliance assessment of the license applicant's (licensee's) capabilities with licensing requirements and conditions and, if necessary, organizes a safety review;

develops and approves guidelines for nuclear and radiation safety, which are advisory in nature and contain methods to comply with the rules and regulations to ensure nuclear and radiation safety, including the performance of work, expertise and safety assessment;

conducts check of knowledge on the issues of radiation safety;

investigates circumstances and causes of radiological accidents and incidents;

studies, analyzes and distributes positive experience of foreign countries;

exercises other powers in accordance with this Law and other legislation acts.

Ministry of Health of the Republic of Belarus in the field of radiation safety:

implements the state policy;

approves the draft regulatory legal acts in the field of radiation safety, mandatory technical normative legal acts, adopted (approved) by other republican state bodies, except for cases stipulated by legislative acts;

establishes the procedure of discharging patients receiving therapeutic radiological procedures using open sources of ionizing radiation, patients with implanted sealed ionizing radiation sources;

organizes specialized training for health workers in charge of medical exposure;

organizes implementation of state sanitary surveillance in terms of ensuring radiation safety;

develops projects of specific sanitary and epidemiological requirements and hygienic standards;

organizes implementation of state sanitary-epidemiological expertise;

ensures preparedness and participation of necessary forces and means to protect the population in case of a radiation accident;

provides an assessment of public exposure and occupational doses from ionizing radiation sources;

establishes the procedure for establishing and applying the dose exposure limits and reference levels;

develops and approves guidelines for compliance with the specific sanitary and epidemiological requirements and hygienic standards, which are advisory by nature;

studies, analyzes and distributes positive experience of foreign countries;

exercises other powers in accordance with this Law and other legislation acts.

In accordance with Article 48 of the Law of the Republic of Belarus "On Radiation Safety", state sanitary supervision in terms of radiation safety is carried out in accordance with the legislation on the control (supervisory) activity and legislation in the field of sanitary and epidemiological welfare of the population.

State sanitary supervision of the radiation safety includes supervision of the compliance with specific sanitary requirements, hygiene standards, as well as other legislative acts in the field of sanitary and epidemiological welfare of the population, including management of radioactive wastes.

Ministry of Natural Resources and Environmental Protection of the Republic of Belarus in the field of nuclear and radiation safety within its competence:

implements the state policy;

participates in radiation monitoring;

approves draft regulatory legal acts in the field of radiation safety, including mandatory technical normative legal acts, adopted (approved) by other republican state bodies, except for cases stipulated by legislative acts;

exercises other powers in accordance with this Law and other legislation acts.

Ministry of Defense of the Republic of Belarus in the field of nuclear and radiation safety:

implements the state policy and state regulations in the Armed Forces of the Republic of Belarus and transport forces of the Republic of Belarus;

provides accounting and control of ionizing radiation sources used for defense purposes;

establishes the procedure, terms of sending and collecting information about radiation accidents and incidents at the facilities belonging to the Armed Forces of the Republic of Belarus and transport forces of the Republic of Belarus;

ensures prevention, containment, elimination of radiation accidents and their consequences at the facilities belonging to the Armed Forces of the Republic of Belarus and transport forces of the Republic of Belarus;

organizes the investigation of the circumstances and causes of radiological accidents and incidents at the facilities belonging to the Armed Forces of the Republic of Belarus and transport forces of the Republic of Belarus;

provides for the use of their forces and resources in activities to prevent, contain, eliminate radiation accidents and their consequences;

carries out the state supervision in the field of radiation safety in respect of ionizing radiation sources used for defense purposes, the treatment of which is not the kind of activity in the use of ionizing radiation sources, subject to licensing.

exercises other functions in accordance with this Law and other legislation acts.

Ministry of Internal Affairs of the Republic of Belarus in the field of radiation safety:

implements the state policy;

takes measures to ensure the safety of ionizing radiation sources used in its activity;

provides for the use of their forces and resources in activities to prevent, contain, eliminate radiation accidents and their consequences, and maintains public order when performing such activities;

establishes the procedure to determine the design threat to establish the requirements for the physical protection for each nuclear energy facility (paragraph 10 of the Decree No. 385 of the Council of Ministers of the Republic of Belarus “On physical protection of nuclear energy use facilities”, of June 14, 2019);

implements other functions in accordance with this Law and other legislation acts.

State Border Committee of the Republic of Belarus in the field of radiation safety:

implements the state policy;

takes measures to prevent illicit import to the Republic of Belarus and (or) export from the Republic of Belarus of ionizing radiation sources outside the border crossing points and checkpoints across the state border of the Republic of Belarus, which provide only border control.

implements other functions in accordance with this Law and other legislation acts.

Committee for State Security approves the access to a nuclear facility, storage facility, nuclear materials, spent nuclear materials, operational radioactive waste (paragraph 13 of the Resolution of the Council of Ministers of the Republic of Belarus “On physical protection of nuclear energy use facilities” No. 385 dated June 14, 2019).

State Committee for Standardization (Gosstandart) of the Republic of Belarus is a regulatory authority that implements general state policy in the field of technical standardization, metrology, energy efficiency; exercising state supervision during construction, control and evaluation of the conformity of projects with the regulations and standards, as well as control of fuel, rational use of electricity and heat energy. The State Committee for Standardization accredits laboratories and

radiation monitoring stations, certification of radiological measurement techniques, calibration and metrological certification of measurement means.

State Construction Supervision (Gosstroynadzor) is one of the departments of the State Committee for Standardization. Gosstroynadzor provides state construction supervision and is an integral part of the system of state regulation of construction activities in the territory of the Republic of Belarus.

The main task of the State Construction Supervision is to verify compliance of the construction investors with the requirements of the legislation of the Republic of Belarus, regulations, specifications and approved design documents for construction to ensure the reliability and safety of the construction projects.

Local executive and administrative bodies in the field of nuclear and radiation safety within their competence:

form regional complexes of measures to ensure the implementation of government programs to be financed from the local budgets;

ensure the preparedness to provide the necessary forces and means to protect the population and territories in case of a radiation accident, educate the population on the protection methods and actions in the event of a radiation accident;

organize the rescue and other emergency operations in the event of a radiation accident, and together with the law enforcement agencies carry out activities on protection of the public order during such activities;

make a decision on evacuation measures and ensure their implementation;

collect and share information in the prescribed manner, provide information to the public about the threat of or the occurrence of a radiation accident in a timely manner;

exercise other powers in accordance with this Law and other legislation acts.

National Commission on Radiation Protection of Belarus under the Council of Ministers of the Republic of Belarus is an interdisciplinary scientific expert, advisory and consultative body on radiation safety.

Within its competence, the National Commission on Radiation Protection of Belarus under the Council of Ministers of the Republic of Belarus:

prepares recommendations on radiation safety for state bodies (organizations);

examines and evaluates the findings of the radiation safety research and gives recommendations for their use.

The National Academy of Sciences of Belarus provides scientific support of works to improve the technology and substantiation of safe RW and SNF management.

Other state bodies and organizations in the field of radiation safety within their competence:

implement measures for the implementation of a unified state policy;

assess the state of radiation safety;

exercise other powers in accordance with this Law and other legislation acts.

E.3.1 Regulatory Body

Ministry for Emergency Situations of the Republic of Belarus is determined as a regulatory authority in the field of nuclear and radiation safety. To implement

regulatory functions in the field of nuclear and radiation safety in 2007 within the Ministry of Emergency Situations there was established the Department for Nuclear and Radiation Safety.

Ministry for Emergency Situations of the Republic of Belarus within its competence in accordance with the regulations approved by the Decree of the President of the Republic of Belarus:

ensures the implementation of state supervision and control to protect the population and territories from natural and man-caused emergency situations, state supervision and control in the field of nuclear and radiation safety, state supervision of safety during transportation of dangerous goods, state fire supervision, state supervision of protection and use of areas affected by radioactive contamination, state supervision of industrial safety;

maintains constant readiness of forces and means of bodies and divisions on emergency situations to take action in the event of natural and man-made emergencies;

adopts normative legal acts in the field of nuclear and radiation safety;

licenses the activities, determined by the legislative acts;

exercises other powers.

The structure of the units of the Ministry for Emergency Situations, involved in ensuring nuclear and radiation safety is provided in Appendix 5.

The Ministry for Emergency Situations of the Republic of Belarus established the **Department for Nuclear and Radiation Safety (Gosatomnadzor)** is a separate structural unit of the Ministry for Emergency Situations with the rights of a legal entity, vested with the authority to supervise and control the compliance with the legislation in the field of nuclear and radiation safety. Gosatomnadzor implements the regulatory functions of the Ministry for Emergency situations in the field of nuclear and radiation safety.

Main tasks of Gosatomnadzor are:

state supervision over the compliance with the legislation in the field of nuclear and radiation safety;

control of the compliance with the legislation in the field of nuclear and radiation safety;

In accordance with the tasks assigned to it, Gosatomnadzor:

analyzes the practical application of the legislation in the field of nuclear energy use, nuclear and radiation safety, and develops suggestions for its improvement;

considers documents on issuance of special permits (licenses) and in accordance with the established procedure prepares proposals for the issuance by the Ministry for Emergency Situations of special permits (licenses) to carry out activities in the field of the use of nuclear energy and ionizing radiation sources;

participates in the issuance of special permits (licenses) by the Ministry for Emergency Situations in the prescribed manner;

establishes requirements for the content of the documents confirming the provision of nuclear and radiation safety of nuclear facilities and ionizing radiation sources, and activities related to ionizing radiation sources and nuclear facilities, radiation protection equipment and technological equipment for nuclear energy facilities and ionizing radiation sources;

organizes the examination of safety of nuclear energy facilities and ionizing radiation sources, the examination of their project and design documents, including with the assistance of independent experts;

organizes and implements state supervision over:

management of radioactive waste and spent nuclear materials, their disposal and storage;

physical protection of nuclear energy facilities and ionizing radiation sources;

planning protective measures to ensure the safety of workers and the population in the event of nuclear and radiation accidents;

compliance with the regulatory and technical legal acts in the field of nuclear and radiation safety;

organizes research on the justification of the principles and criteria of nuclear and radiation safety;

examines and submits according to the established procedure the suggestions on draft programs (plans) of research and development activities;

ensures the functioning of the state system for nuclear materials accounting and control, unified state system of accounting and control of ionizing radiation sources;

determines the requirements for the content and procedure for submitting information to Gosatomnadzor about violations in the work of radiation facilities, nuclear power facilities;

determines the order of investigation of the circumstances and causes of violations in the work of radiation facilities, nuclear power facilities, and conducts such investigations;

organizes the development of requirements and conditions that prevent the possibility of committing acts of terrorism at radiation facilities, nuclear power facilities;

participates in the organization and conduct of work on the certification of equipment, products and technologies for nuclear power facilities and ionizing radiation sources;

organizes vocational training, retraining, advanced training and internship of Gosatomnadzor workers;

participates in the work of:

commissions for preliminary, periodic and acceptance testing of equipment and technical devices used at radiation facilities, nuclear power facilities;

special commissions for the selection of radioactive waste disposal sites;

commissions on acceptance of monitored facilities for commissioning;

state expert scientific and technical committees on the review of projects in the field of nuclear energy, nuclear and radiation safety;

performs control over:

the compliance with the requirements of standards and regulations in the field of nuclear energy use;

the fulfillment of international obligations of the Republic of Belarus to ensure nuclear and radiation safety in the use of nuclear energy and ionizing radiation sources;

the organization and conduct of vocational training, retraining and advanced training, training of radiation and nuclear plants personnel in the safe conduct of work at radiation facilities, nuclear power facilities;

the implementation of measures to improve the emergency stability and safety of radiation facilities, nuclear power facilities;

informs the public in accordance with the law on the safety status of radiation facilities, nuclear power facilities;

The structure of Gosatomnadzor was revised due to the preparation for the commissioning of the Power Unit No. 1 of the Belarusian NPP, including the beginning of installation of safety-related equipment and systems, fuel delivery, review of supporting documents with regard to nuclear safety and reliability, including documents relating to the stages of commissioning of the NPP power units and the start of operation of the NPP. From March 11, 2020, the functions and human resources between the departments of Gosatomnadzor and STC NRS was redistributed, taking into account the existing knowledge and competencies of employees, which allowed to maximize the use of available experienced and qualified human resources (see Appendix 6).

Department for the elimination of the Chernobyl disaster consequences implements measures to improve the sanitary condition of the territories of primary and subsequent resettlement, from which the population was resettled, and the settlements that relate to the evacuation (alienation) areas, of primary and subsequent resettlement, as well as the other settlements that will be resettled, provide for the maintenance of disposal system of the radioactive waste generated during the elimination of the consequences of the Chernobyl disaster, and its safe operation.

E.3.2 Status of the Regulatory Body

The scheme of the state bodies and organizations involved into nuclear and radiation safety provision in the Republic of Belarus has not been changed and is presented in Appendix 4.

The Ministry for Emergency Situations of the Republic of Belarus in its activities is subordinate to the Council of Ministers of the Republic of Belarus. The Ministry for Emergency Situations of the Republic of Belarus supports the direct communication with the state (government) bodies of a higher level in the cases when such communication may be required for the effective implementation of the regulatory body functions.

E.3.3 Technical Support Arrangement

In accordance with the Resolution of the Council of Ministers of the Republic of Belarus No. 991 dated December 2, 2016, a list of 17 organizations that provide scientific and technical support to the regulatory authority in the field of nuclear and radiation safety, was determined.

1. State Scientific Institution “Joint Institute for Power and Nuclear Research - Sosny” of the National Academy of Sciences of Belarus;

2. State Scientific Institution “Powder Metallurgy Institute”.

3. State Scientific Institution “Institute of Applied Physics at the National Academy of Sciences of Belarus”.

4. State Scientific Institution “A.V. Luikov of Heat and Mass Transfer Institute of the National Academy of Sciences of Belarus”.

5. State Institution “Center of Geophysical Monitoring of the National Academy of Sciences of Belarus”.

6. State institution “Republican Center for Hydrometeorology, Radioactive Contamination Control and Environmental Monitoring”

7. State Educational Institution “University of Civil Protection of the Ministry for Emergency Situations of the Republic of Belarus”.

8. Institution “Research Institute of Fire Safety and Emergencies Problems” of the Ministry for Emergency Situations of the Republic of Belarus.

9. State Scientific Institution “Radiobiology Institute” of the National Academy of Sciences of Belarus.

10. Belarusian State University.

11. Educational establishment International Sakharov Environmental Institute of Belarusian State University.

12. Research Institution “Institute for Nuclear Problems” of the Belarusian State University.

13. State Educational Institution “National Institute for Higher Education”.

14. Belarusian National Technical University.

15. Educational Establishment “Belarusian State University of Informatics and Radioelectronics”.

16. State Institution of Higher Professional Education “Belarusian-Russian University”.

17. State scientific technical institution “Nuclear and Radiation Safety Center”.

To implement international requirements and recommendations of the coordinating functions between scientific and technical support organizations, and to improve the effectiveness and efficiency of scientific and technical support provided by organizations to the regulatory body in the field of nuclear and radiation safety,the State scientific and technological institution “Nuclear and Radiation Safety Center” was established in the structure of the Ministry for Emergency Situations of the Republic of Belarus by the Decree No. 361 of the President of the Republic of Belarus, of October 5, 2017, “On creation of the institution”.

State scientific technical institution “Nuclear and Radiation Safety Center” provides to Gosatomnadzor scientific and technical support in the assessment of safety of nuclear facilities and ionizing radiation sources, evaluation of safety when managing the radioactive waste and nuclear materials, provides support in making decisions on issues of emergency preparedness and response, develops draft technical regulations in the field of nuclear and radiation safety, carries out scientific research in the field of nuclear and radiation safety, including the preparation and maintenance of international scientific programs, development of computational models, examination techniques.

Section F. OTHER GENERAL SAFETY-RELATED PROVISIONS

F.1. Responsibility of the License Holder

Article 21. Responsibility of the license holder

1. Each Contracting Party shall ensure that the prime responsibility for the safety of spent fuel or radioactive waste management rests with the holder of the corresponding license and shall take the appropriate measures to ensure that each such license holder fulfills its responsibilities.

2. If such license holder or other responsible party does not exist, then the responsibility rests with the Contracting Party which has the jurisdiction over the spent fuel or radioactive waste management.

Article 32 of the Law of the Republic of Belarus "On nuclear energy use" defines the duties and responsibilities of the operating organization to ensure the safety of nuclear facilities.

The operating organization develops and implements measures to maintain and improve the safety of nuclear facilities, creating, if necessary, appropriate services, executing control of safety, provides information on the safety of these facilities to state authorities for safety regulation when using the nuclear energy within the terms established by them.

The operating organization shall ensure the following:

the use of nuclear facilities only for the intended purposes;

to organize and carry out works in the volume and with quality that meet the requirements of technical regulatory legal acts at all stages of locating, design, construction, commissioning, operation, limiting performance, extending the service life, decommissioning nuclear facilities;

to develop and implement measures to prevent the occurrence of a radiation accident while carrying out activities on the use of nuclear energy and to reduce its negative consequences for workers (personnel), citizens and the environment;

management of nuclear materials, spent nuclear materials and (or) operational radioactive waste, safe for workers (personnel) and citizens;

creation and intended use of the fund of the decommissioning of nuclear facilities and the fund to finance works to maintain and improve the safety of the nuclear facilities;

to ensure realization of the rights of workers (personnel) to social guarantees;

to account for the individual doses of workers (personnel);

to develop and implement measures to protect workers (personnel) and citizens in the observation area in the event of a radiation accident while carrying out activities on the use of atomic energy;

to account for and control the nuclear materials, spent nuclear materials, operational radioactive waste and other sources of ionizing radiation;

to ensure physical protection of nuclear facilities;

to develop and implement fire safety measures at the storage facility;

to ensure radiation control and radiation monitoring in the sanitary protection zone and surveillance zone;

to select, train, retrain and provide advanced training of employees (personnel), and to maintain their required number;

to inform the citizens in the surveillance zone about the radiation situation;

to perform other duties established by law.

In accordance with the law the operating organization shall be responsible for failure to comply with the requirements for the safety of nuclear facilities.

In case of adoption in the prescribed manner of decisions on suspension, termination or cancellation of the special permit (license) authorizing to operate nuclear facilities, the republican state administration body or other state organization or any other state organization in charge of these facilities shall take measures to ensure its safety. If the resumption of the activities of the special permit (license) is impossible, the corresponding republican state administration authority or any other state organization in charge of the said facilities shall take measures to create a new operating organization.

Article 33 of the Law of the Republic of Belarus "On Nuclear Power Use" defines the duties and responsibilities of the organizations carrying out the work and (or) providing services in the implementation of activities on nuclear power use.

Organizations engaged in design and survey, research, development and technological works, construction and manufacture of equipment for the plant, scientific support, execution of other works and (or) provision of other services in the implementation of activities on nuclear power use, ensure the execution of the works and (or) provision of the services in the scope and with the quality that meet the requirements of the technical regulations, and are responsible for the quality of work and (or) services rendered within the prescribed period of operation specified in the plant project.

The above-mentioned organizations, performing the work and (or) providing the services directly at the plant, or with nuclear materials, spent nuclear materials and (or) radioactive waste, are regulated by the requirements of the law in respect of the operating organizations in terms of their compliance with the requirements for ensuring nuclear and radiation safety.

Article 38 of the Law of the Republic of Belarus "On Nuclear Power Use" defines the responsibility for the violation of the legislation on nuclear power use.

The officials of the state bodies, including the republican state administration bodies in the field of nuclear power, state bodies for the regulation of safety when using the nuclear power, local and self-government authorities, as well as employees (staff) of the operating organizations, organizations performing the work and (or) providing services in the implementation of activities on nuclear power use, as well as other persons bear disciplinary, administrative, criminal and (or) other responsibility for the violation of the legislation on nuclear power use.

In accordance with the tasks assigned to it and within its competence, Gosatomnadzor organizes and carries out state supervision over compliance with the licensing requirements and conditions in the field of nuclear power and ionizing radiation sources by the licensees, including the management of the spent nuclear materials and radioactive waste.

Within the supervision, Gosatomnadzor has the right to issue within its competence the binding written orders on corrections of violations in the field of nuclear and radiation safety, including on the complete or partial suspension of activity; submit suggestions to the heads of the supervised facilities on disciplinary actions towards their employees for the violation of the nuclear and radiation safety requirements; appoint an extraordinary test of knowledge of heads and experts of the

supervision subjects on nuclear and radiation safety; draw up protocols on administrative violations.

In accordance with the legislation on licensing, the licensing authority or other public authorities, other state organizations within their competence exercise control over compliance by the licensees with the legislation on licensing, license requirements and terms. The control for the fulfillment of requirements of the legislation is achieved within the framework of the established state supervision system for the safe conduct of work in the field of nuclear and radiation safety and public sanitary supervision system. State supervision system provides for regular inspections to check the compliance with the requirements of the regulatory documents and terms of the license.

When the licensing or other state body, empowered to exercise control (supervision) for the implementation of the licensed activity, identifies the breaches by the licensee of the licensing legislation or established terms and conditions, the licensee shall be required to correct the revealed violations within the specified period of time. This period may not exceed 6 months.

If the licensee fails to correct the violations specified in the request (order) to correct the violations within the prescribed period, or the licensing or other control (supervisory) body is not provided with a written notice on the correction of such violations, or a violation by the licensee (its employee, separate subdivision) of special licensing requirements and conditions is identified, the licensing authority makes a decision to suspend the license for up to six months.

If the licensee fails to remedy the violations that led to the suspension of a license within the established period or the licensing or other control (supervisory) body is not provided with a written notice on the correction of such violations, the licensing authority that issued the license decides on the termination of such license.

If during the license suspension period the licensee continued the licensed activity, the licensing authority shall also decide on the termination of such license.

If the repeated or gross violation of the licensing legislation, license terms and conditions or other violations, which are the grounds for termination, is revealed, the licensing authority shall make a decision to terminate such license.

The persons responsible for or guilty in the violation of requirements of nuclear and radiation safety may be subject to administrative (fine or deprivation of the right to engage in certain activities) or criminal liability (arrest, restriction or deprivation of freedom) (Appendix 7).

The license may be terminated by a court decision:

if the licensing authority made an illegal decision to amend and (or) change the license;

if the violation of license requirements and conditions by the licensee entailed damage to the national security, public order, morals, rights and freedoms, life and health of citizens, the environment;

if the licensee prevents the activity of the licensing or other control (supervisory) body in carrying out activities to control the compliance of the licensee with the licensing legislation, license requirements and terms, including non-compliance by the licensee with the lawful orders or requests of the officials of such authorities in

the exercise of their official authority, providing such officials with false documents and other information relating to the implementation of the licensed activity;

changes and (or) amendments to the license based on the false information provided by the licensee necessary (relevant) for making a decision to amend and (or) change the license.

F.2. Human and Financial Resources

Article 22. Human and financial resources

Each Contracting Party shall take appropriate measures to ensure:

i) availability of qualified personnel required for the implementation of safety activities during the service life of the unit for management of spent fuel and radioactive waste;

ii) sufficient financial resources to support the safety of facilities for spent fuel and radioactive waste management during their service life and for decommissioning are available;

iii) financial provision, allowing to implement measures of appropriate institutional control and supervision throughout the period deemed necessary following the closure of the disposal facility.

F.2.1 Financial Resources

All facilities for radioactive waste management are operated by government agencies, so the financial resources to maintain their safety during their operation and decommissioning are stipulated and allocated from the state budget at the request of the operating organizations as appropriate. The work required to maintain the safety and institutional control of the disposal facilities of the decontamination waste of Chernobyl origin is financed within the framework of the State program on overcoming the consequences of the Chernobyl NPP disaster.

The design and construction of the NPP in the Republic of Belarus is financed at the expense of the national budget, as well as from the state export credit provided in accordance with the Agreement between the Government of the Republic of Belarus and the Government of the Russian Federation on the provision of the state export credit to the Republic of Belarus for the construction of the NPP in the Republic of Belarus of November 25, 2011. The loan to finance 90 percent of the contract cost for the construction of the Belarusian NPP is provided.

The Ministry of Energy of the Republic of Belarus ensures that the Republican Unitary Enterprise “Belarusian Nuclear Power Plant” carries out permanent and adequate financing of all the works and services for the design, construction and commissioning of the Belarusian NPP, as well as the supply of all necessary goods, in accordance with the agreements (contracts).

To finance the research, development and other works to maintain and improve safety of nuclear plants and (or) storage facility, the Republican Unitary Enterprise “Belarusian Nuclear Power Plant” will create the fund to finance the works on maintenance and improvement of nuclear plant and (or) storage facility safety prior to the commissioning of the nuclear plant.

The Republican Unitary Enterprise “Belarusian Nuclear Power Plant” will create a fund for decommissioning of a nuclear plant to carry out the activities on decommissioning, early decommissioning or restriction of the performance of the nuclear plant. Nuclear plant decommissioning fund is only used to finance the measures provided for in the program for the decommissioning, early

decommissioning or limiting the performance of the nuclear facility and (or) storage facility.

The Ministry of Energy in cooperation with relevant government authorities develops a corresponding decree of the President of the Republic of Belarus.

F.2.2 Human Resources

The operating organization must provide the radioactive waste management units with qualified personnel in the field of nuclear and radiation safety.

Availability of the qualified personnel in the field of nuclear and radiation safety is a common requirement to obtain a special permit (license) to carry out the activities in the field of nuclear power and ionizing radiation sources use.

The Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 18 dated April 16, 2020 approved the Instruction on the Procedure for Training, Providing Training and Assessing Knowledge on the issues of Nuclear and Radiation Safety.

According to the requirements of these guidelines the workers (Technical Managers, Specialists) are required to undergo training on nuclear and radiation safety within one month from the date of appointment and periodically in accordance with the regulations, but not less than once every five years.

The mentioned training is carried out in educational institutions (centers) having a permit issued by the Nuclear and Radiation Safety Department.

In accordance with the norms and rules for ensuring nuclear and radiation safety "Safety in the Radioactive Waste Management. General provisions" the operating organization must be provided with the workers (personnel), duly qualified and approved in the prescribed manner to work independently, to carry out the work on the radioactive waste management.

The system of selection and training of employees (personnel) who perform work on the radioactive waste management, should be aimed at achieving, monitoring and maintenance of their qualification level required for the safe performance of work on the radioactive waste management, as well as emergency actions in case of deviations in the normal operation of the facility.

Training of the personnel for nuclear power industry in the Republic of Belarus is carried out within the framework of sub-program 10 "Training of personnel for nuclear power industry" of the State Program "Education and Youth Policy" for 2016 - 2020, approved by the Resolution of the Council of Ministers of the Republic of Belarus No. 250 dated March 28, 2016 (formerly from 2008 to March 2016 - State program for training personnel for nuclear power industry).

Besides, the training of the personnel for nuclear power plants is carried out in the training center of the nuclear power plant and in specialized training centers and institutions of the Russian Federation in accordance with the General contract for the construction of the Belarusian NPP.

Based on the needs, the state order for training is formed on the basis of applications from the state bodies (organizations): the volume of training, retraining, raising (maintenance) of the qualification of the specialists, scientists of the highest qualification in the context of professions and workers is determined by years;

educational establishments that are currently conducting training are determined; the preparation plans by years in their respective educational establishments are provided.

Within the sub-program 10 “Training of personnel for nuclear power industry”:

the higher educational institutions of the country (the educational establishments Belarusian National Technical University, Belarusian State University of Informatics and Radio Electronics, Belarusian State University, International Sakharov Environmental Institute of the Belarusian State University (in the past - International Environmental Institute in the name of A. D. Sakharov)) continue to prepare students in 8 new professions in the field of nuclear energy, including “Nuclear Physics and Technology”, “Construction of Thermal and Nuclear Power Plants”, “Steam Turbine Units at Nuclear Power Plants” (from 2020 to be replaced with a new one - “Operation of NPP”), “Electronic control and management systems at nuclear power plants”, etc.;

internships of teachers and researchers of higher education institutions abroad, practical training of students in advanced nuclear power program was organized;

additional training, internships and training seminars for the specialists of the regulatory body in the field of nuclear and radiation safety; state bodies exercising control (supervisory) activities of the work at all stages of the life cycle of the Belarusian NPP, as well as for their subordinate organizations, territorial bodies, are provided.

Based on the urgent importance of training the personnel for the nuclear power industry, the Republic of Belarus, in addition to the listed activities, actively uses the IAEA technical assistance (technical cooperation programs) to train specialists for the nuclear power program. These programs include the provision of expertise and advice on the creation of the training system for nuclear power industry personnel based on the international experience and recommendations of the IAEA and include workshops and training sessions, visits of the Belarusian scientists and university teachers to the NPP training centers and research institutes abroad, visits by the Belarusian specialists to the operating NPP’s and NPP’s under construction, as well as development and delivery of computer training system for organizations involved in the construction project of the Belarusian NPP.

The execution of a range of planned training activities aimed at the acquisition and continuous improvement of knowledge and skills of the personnel of the regulatory body required for the performance of their official duties, and improvement of their skills to fulfill the tasks taking into account the transition to the stage of preparation for commissioning of the power units 1 and 2 of the Belarusian NPP are ongoing. Participation of the Gosatomnadzor employees in the training activities within the framework of international and bilateral cooperation was noted at the 7th Meeting of the Contracting Parties to the Convention on Nuclear Safety in 2017 as “the area of good performance”.

Both internal and external sources are used for intensive development and maintenance of competence:

events of subprogram 10 “Training of Personnel for the Nuclear Power Industry” of the State Program “Education and Youth Policy” for 2016-2020, approved by the Resolution of the Council of Ministers of the Republic of Belarus

No. 250 dated March 28, 2016. Intensive training in the country supplying the nuclear technology (the Russian Federation) is provided;

projects, including regional, of international technical assistance of the IAEA and the European Commission.

A significant number of training workshops within the framework of the technical assistance of IAEA (BYE/9/023, "Improving the competence of the regulatory body and its technical support system at the stage of Belarusian Nuclear Power Plant commissioning and operation") and the European Union (BY 3.01/16, "Support to strengthen the capabilities of the Belarusian Nuclear Regulatory Authority") is organized in the Republic of Belarus (Minsk, Ostrovets), which allows to improve not only the competence of the employees of Gosatomnadzor and interested agencies and departments for emergency situations, organizations within the MES system, but also the employees of the Ministry of Health, the Ministry of Economy, the Ministry of Natural Resources and Environmental Protection, the Ministry of Foreign Affairs, the scientific institution "JIPNR-Sosny", SE "Belarusian NPP", SRI "Institute for Nuclear Problems", Belarusian State University, SI "N.N. Aleksandrov Republican Scientific and Practical Center of Oncology and Medical Radiology", HE "Minsk City Clinical Oncology Dispensary", and other organizations, as well as to perform the leading function in the regulation in the field of nuclear and radiation safety.

The technical support organizations of the regulatory body of the Russian Federation FSUE VO "Safety" provides support as part of the state supervision of the project for the construction of the Belarusian NPP and manufacturing of equipment, development of regulatory documents.

The interaction is established within the Regulatory Cooperation Forum (RCF), The Forum of the state Nuclear Safety Authorities of the countries operating WWER Type Reactors (WWER Forum), the Western European Nuclear Regulators' Association (WENRA).

A permanent mission of experts, composed of the representative from France, Germany, Ukraine, works in the Republic of Belarus within the framework of the project of the European Commission BY3.01/16. Mission experts provide Gosatomnadzor with assistance by advising on strategic and operational issues in various areas of regulatory activities in the field of nuclear and radiation safety.

Particular attention in Gosatomnadzor is paid to the training of the employees, whose scope of work includes safety analysis and assessment, implementation of state supervision in the field of nuclear and radiation safety.

Evaluation of the effectiveness of the measures taken to achieve and maintain the competence of Gosatomnadzor employees is carried out by means of periodic knowledge assessments (including with participation of external experts) and certification (as a rule, once every three years), analysis and processing of complaints about the activities of Gosatomnadzor (if any), the results of external audits (IAEA missions, audits of Gosatomnadzors by the Ministry for Emergency Situations and other competent authorities of the Republic of Belarus). This ensures that the employees have the necessary skills, knowledge and experience to perform their duties.

In the view of long-term nuclear power program, the human resources are required and therefore Gosatmonadzor carries out the work on the creation of an integrated and systematic approach to the identification, acquisition, creation, distribution, use and preservation of knowledge relevant to the achievement of the objectives accordance with the following strategic documents: Gosatomnadzor policy, Gosatomnadzor strategy in the field of nuclear and radiation safety, as well as a number of thematic strategies.

F.3. Quality Assurance

Article 23. Quality Assurance

Each Contracting Party shall take appropriate measures to ensure the development and implementation of the necessary quality assurance programs related to the safety of spent fuel and radioactive waste management.

The operating organization shall organize and carry out works in the volume and with quality that meet the requirements of technical regulatory legal acts at all stages of locating, design, construction, commissioning, limiting performance, extending the service life, decommissioning a nuclear unit and/or a storage facility. The organizations engaged in the design and survey, research, development and technological works, design and manufacture of equipment for the nuclear plant and (or) disposal facility, scientific support, execution of other works and (or) provision of other services in the implementation of activities on nuclear power use, ensure the execution of the works and (or) provision of the services in the scope and with the quality that meet the requirements of the technical regulations, and are responsible for the quality of work and (or) services rendered within the prescribed period of operation specified in the project for the nuclear plant and (or) storage facility.

In accordance with the Regulation on licensing of certain activities for the implementation of activities in the field of nuclear energy the requirement for a quality control and (or) quality assurance system is a common requirement to obtain a special permit (license) to carry out the activities in the field of nuclear energy and sources of ionizing radiation use.

According to the requirements of norms and rules on nuclear and radiation safety “Safety of Radioactive Waste Management. General Provisions”, the operating organization shall develop and maintain a quality assurance program for management operational RW to ensure safety at all stages of the work on RW management and safe operation of the systems (components), structures and components of the facility.

Requirements to the composition and content of the quality assurance programs are identified by a number of technical regulatory legal acts. Quality assurance programs are performed at all stages of the life cycle of the RW management facility, which includes site selection, design, construction, equipment manufacturing, commissioning, operation and decommissioning of RW management facility. An integral part of quality assurance is the control of its implementation.

Safe and reliable operation of a nuclear power plant is possible if the quality assurance is ensured at all stages of the nuclear power plant life cycle. The first priority of the state enterprise “Belarusian NPP” in ensuring the quality is to ensure the nuclear safety. This means that when considering any issues, alternative design

solutions and engineering developments, selection of the products and service suppliers, etc. the unconditional priority is given to the implementation of the NPP safety requirements.

The State Enterprise “Belarusian NPP” as the operating organization carries out on its own and with involvement of other organizations the activities on the design, construction, commissioning of the NPP, operation, limiting the performance, extending the service life and decommissioning of the nuclear units, as well as activities on the nuclear materials and operational radioactive waste management.

To ensure safety as a priority task, the State Enterprise “Belarusian NPP” manages the activity in such manner that the processes and actions ensuring the fulfillment of the NPP safety requirements are established and carried out taking into account other requirements, including economic requirements, requirements for managers, personnel, labor protection, environmental protection, accounting and control nuclear materials, physical protection, quality, so that the needs and requirements do not adversely affect the safety of the NPP.

The management of the State Enterprise “Belarusian NPP” shall:

provide quality and timely execution of work on site selection, location, design, construction, commissioning, operation and decommissioning of the Belarusian NPP;

provide the enterprise with the definition of all relevant legal and regulatory requirements that apply to its products, processes and activities;

provide economical and reliable operation of the equipment, systems and structures of the Belarusian NPP;

ensure compliance with environmental protection requirements;

ensure the development, implementation, certification, maintenance of the enterprise and the improvement of the integrated enterprise management system;

ensure the allocation of the necessary financial, logistical and human resources to carry out the work in terms of quality assurance and safety of the Belarusian NPP;

ensure the implementation and maintenance of the quality assurance programs at all stages of the life cycle of the NPP;

be responsible for planning, organization and control of the quality assurance activities, regulated by the general quality assurance for safety in nuclear power plants QASNPP (G), carry out regular reviews and update QASNPP (G) to achieve continuous improvement;

ensure the conduct of internal and external audits of the quality management system (Integrated Management System) at the enterprise, the General Contractor and contractors involved;

ensure effective human resources policy of the enterprise;

ensure the selection of suitably qualified personnel, arrange continuous work on maintaining the personnel qualification, increase its qualification level and safety culture;

ensure safe and harmless working conditions at every workplace.

An integrated management system (hereinafter - IMS) operates at the state enterprise “Belarusian NPP”, taking into account the requirements and recommendations of the IAEA documents on safety and meeting the requirements of: STB ISO 9001-2015, STB 18001-2009, STB ISO 14001-2017.

Within the current IMS:

management representative on IMS is appointed;

the IMS Coordinating Council was created and operates;

authorized representatives on IMS were appointed;

IMS policies established the obligations to maintain the top management and improvement of the IMS;

IMS processes were defined;

process owners and their responsibilities were identified;

IMS instruments in various areas of activity of the enterprise (policies, management, enterprise standards, regulations, processes passports, etc.) were developed;

risk registers and IMS processes risk management processes were developed;

internal audits of the IMS are conducted;

IMS operating processes are monitored;

analysis is carried out by management.

A technical code of the established practice TCP 101-2007 "Location of nuclear power plants. Procedure for the development of a general quality assurance program for nuclear power plants" is in force in the Republic of Belarus, which regulates, inter alia, quality assurance activities at the NPP; types of quality assurance programs, the requirements for the development and maintenance of quality assurance programs (site selection, design, manufacture of equipment, construction and installation work, commissioning and operation of NPP, etc.).

The operating organization ensures the development and implementation of quality assurance programs at all stages of the life cycle of the NPP. For this purpose, the state enterprise "Belarusian Nuclear Power Plant" developed and/or approved:

general quality assurance safety in nuclear power plants QASNPP (G);

quality assurance program for safety in nuclear power plants during commissioning of the Belarusian NPP power units QASNPP (C);

quality assurance for safety of the operation of the Belarusian NPP units QASBNPPU (O);

quality assurance program for nuclear materials (nuclear fuel) management QAP NM (NF);

quality assurance program for the management of operational radioactive waste QAP (RWo);

quality assurance program for dealing with sources of ionizing radiation QAP IRS.

Organizations performing the work and (or) providing services to the State Enterprise "Belarusian NPP" on the implementation of activities on the use of nuclear energy, ensure the execution of works and (or) rendering of services in accordance with the requirements of the technical regulations, and are responsible for the quality of work performed and (or) the services rendered within the prescribed period of operation, a specific project for a nuclear plant, and (or) storage facility. Organizations performing work or providing services to the State Enterprise "Belarusian NPP", on the basis of QASNPP (G) develop specific quality assurance programs for corresponding activities (for example, when performing construction

and installation works QASNPP (CI), when commissioning the NPP power units QASNPP (C), etc.).

Internal and external audits, including for the purpose of quality assurance programs verification and evaluation of their effectiveness are conducted at the state enterprise "Belarusian NPP" and organizations carrying out work and (or) providing services to the operating organization. The results of the inspections (audits) are used to issue corresponding reports, to develop corrective actions to remedy the identified inconsistencies (if any).

In accordance with the established requirements, all organizations that have received a license to manage RW have developed and approved quality assurance programs in accordance with the established procedure.

F.4. Operational Radiation Protection

Article 24. Operational radiation protection

1. Each Contracting Party shall take the appropriate measures to ensure that during the operating lifetime of a spent fuel and radioactive waste management facility:

i) the radiation exposure of the workers and the public caused by the facility shall be kept as low as reasonably achievable, economic and social factors being taken into account; and

ii) no individual shall be exposed, in normal situations, to radiation doses which exceed national prescriptions for dose limitation which have due regard to internationally endorsed standards on radiation protection.

iii) measures are taken to prevent unplanned and uncontrolled releases of radioactive materials into the environment.

2. Each Contracting Party shall take appropriate measures to ensure that discharges shall be limited:

i) to keep exposure to radiation as low as reasonably achievable, economic and social factors being taken into account; and

ii) so that no individual shall be exposed, in normal situations, to radiation doses which exceed national prescriptions for dose limitation which have due regard to internationally endorsed standards on radiation protection.

3. Each Contracting Party shall take appropriate measures to ensure that during the operating lifetime of a regulated nuclear facility, in the event that an unplanned or uncontrolled release of radioactive materials into the environment occurs, appropriate corrective measures are implemented to control the release and mitigate its effects.

Basic principles and requirements for the radiation protection are defined in the Law of the Republic of Belarus "On Radiation Safety".

To prevent harm to the health of the population and the personnel in case of planned exposure, the following doses limits are legally established:

in case of irradiation of the population, the average annual effective dose limit is 0.001 Sv (1 mSv), exposure amounting to the annual effective dose up to 0.005 Sv (5 mSv) is acceptable, provided that the average annual effective dose calculated for five consecutive years, including the year when the limit of the average annual effective dose has been exceeded, does not exceed 0.001 Sv (1 mSv);

in case of professional irradiation, the average annual effective dose limit is 0.02 Sv (20 mSv), exposure amounting to the annual effective dose up to 0.05 Sv (50 mSv) is acceptable, provided that the average annual effective dose calculated for five consecutive years, including the year when the limit of the average annual effective dose has been exceeded, does not exceed 0.02 Sv (20 mSv);

The requirements for ensuring radiation safety in case of different types of ionizing radiation, both quantitative and qualitative values of the ionizing radiation

exposure on humans are established by the Sanitary Norms and Rules “Requirements for the Radiation Safety” and Hygienic standard “Criteria for radiation exposure assessment”, approved by the Resolution of the Ministry of Health of the Republic of Belarus No. 213 dated December 28, 2012. These documents are developed in accordance with IAEA standard “Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards. General Safety Requirements. GSR Part 3”.

To maintain the radiation exposure of the public, personnel of the unit for radioactive waste management as low as reasonably achievable, taking into account the economic and social factors, the national regulations envisage the following measures:

development of a safety analysis report;

development and adoption of dose constraints and reference levels of the personnel and population exposure to the radiation factor with regard to the principle of optimization and efficiency of measures to improve the radiation situation;

creation of working conditions complying with the requirements of regulations, providing personal with protection equipment;

systematic control over the radiation situation in the workplaces, in the territory of the plant, in the sanitary protection zone and in the surveillance zone, as well as of emissions, discharges of radioactive substances, which must not exceed the established limits;

carrying out control and accounting of individual doses to workers and the population.

The standards for allowable emissions and discharges are developed for all radiation facilities with stationary sources of emissions and (or) release, in which during the normal operation the actual emissions and (or) releases create a radiation dose exceeding 10 mSv per year from all exposure pathways. The procedure for the development and approval of standards for allowable emissions and releases of radioactive substances into the environment was approved by the Resolution of the Government No. 497 dated August 21, 2020.

To limit the emissions and releases of radioactive substances into the environment the Belarusian NPP project envisages radiation control at all routes of radioactive substances release into the environment, the subsequent comparison of the measured values with the permissible levels and prevention of release in case of their exceedance.

Besides, the following additional measures are implemented in the project:

arrangement of the release of gaseous radioactive waste from the plant into the atmosphere through the vent stack 100 m high after pretreatment, providing a high degree of reduction of radionuclide concentration in the atmosphere;

discharge of the treated NPP liquids only through control tanks with mandatory radiation control;

cleaning of liquid and gaseous radioactive fluids, and exhaust air of the ventilation systems in the controlled access zone before discharge/emission from the NPP;

radiation control and monitoring in the surveillance area, established around the NPP;

other activities.

F.5. Emergency Preparedness

Article 25. Emergency preparedness

1. Each Contracting Party shall ensure that before and during the operation of the plant, the corresponding emergency plans were established at the site and, if necessary, off-site, for spent fuel and radioactive waste management. Such emergency plans are practiced as often as necessary.

2. Each Contracting Party shall take appropriate measures to ensure the preparation and practice of the emergency plans for its territory insofar it is probable that it will be exposed in the event of a radiological emergency at the facility for spent fuel or radioactive waste management near its territory.

The nuclear and radiation accident response system in the Republic of Belarus is integrated into the national emergency response system. A State System for Prevention and Elimination of Emergency Situations (hereinafter – SSES) was established and operates. Basic requirements for this system are defined in the Law of the Republic of Belarus No. 141-З dated May 5, 1998 "On Protection of Population and Territories from Emergencies of Natural and Man-Made Origin. Requirements to the radiation safety in case of a radiation accident, nuclear or radiological emergency are established by the Law of the Republic of Belarus "On Radiation Safety" and the Law of the Republic of Belarus "On Nuclear Power Use".

Legislation defines the requirements for the development of emergency preparedness and emergency response measures in case of accidents at nuclear plants. Measures to ensure emergency preparedness and response in case of accidents at nuclear facilities are established by external and internal emergency plans. Conditions and procedure for the development of emergency plans are defined by the Resolution of the Government of the Republic of Belarus No. 1242 dated August 27, 2010.

The work continues on the improvement of the regulatory requirements in accordance with modern international approaches, including those contained in the IAEA safety standards GSR Part 7. The Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 38 dated August 21, 2017 "On Approval of Rules and Regulations to Ensure Nuclear and Radiation Safety" ("Requirements for the Categorization of Emergency Planning in the Event of a Nuclear or Radiological Emergency") establishes the requirements for the categorization of emergency planning in case of nuclear or radiological emergency.

A differentiated approach to the development of emergency planning measures, depending on the danger category of the facility (practical activity) was implemented. The Resolutions of the Ministry for Emergency Situations of the Republic of Belarus No. 24 dated June 2, 2017 and No 43 dated August 8, 2018 established the requirements for the composition and content of the action plans in case of accidents at NPP, or research nuclear plant.

Taking into account the IAEA documents, the regulatory requirements for the establishment of the emergency class, procedure, emergency announcements, transfer of information in case of a nuclear and (or) radiological emergency at a nuclear power plant were developed (the Resolution of the Ministry for Emergency Situations of the Republic of Belarus "On Approval of Rules and Regulations to Ensure Nuclear and Radiation Safety" No. 52 dated October 2, 2018, ("Safety of Nuclear Power Plants in the Event of Nuclear and (or) Radiological Emergency. Requirements for

the Establishment of Emergency Class, Procedure of Emergency Announcements, Immediate Distribution of Information", "Nuclear Power Plants Safety. Requirements to the Procedure of Investigation and Recording of Violations in the Operation of Nuclear Power Plants")).

The document takes into account the IAEA approaches outlined in the safety standards GSR Part 7 "Preparedness and Response in Case of a Nuclear or Radiological Emergency", GSG-2 "Criteria to Ensure the Preparedness and Response in the Event of a Nuclear or Radiological Emergency", GS-G-2.1 "Measures to Ensure Preparedness for Nuclear and Radiological Emergency". In accordance with the IAEA recommendations, an approach for emergency classification based on the analysis of technological and radiation parameters was implemented. With the purpose of timely identification, adoption and establishment of an emergency class, the requirements for the identification of specific, pre-defined criteria and observed criteria - action levels in emergencies - were implemented.

The Resolution of the Ministry for Emergency Situations of the Republic of Belarus "On Approval of Rules and Regulations to Ensure Nuclear and Radiation Safety" No. 11 dated April 12, 2017 establishes the requirements for the operating organization concerning planning and implementation of radiation monitoring in case of a nuclear or radiological emergency at a nuclear power plant.

Performing Measures to Improve Emergency Preparedness

Actions of the national state administration bodies, local administrations and self-government authorities and other organizations, citizens to protect lives and health of the citizens, environmental protection and protection of property in case of a radiation accident at a nuclear facility and (or) storage facility located outside the territory of the Republic of Belarus within 100 km from the State border of the Republic of Belarus, are implemented in accordance with the Plan of Protection from Radiation Accidents, which is one of the sections of the Plan to Protect the Population and the Territory of the Republic of Belarus from Emergency Situations of Natural and Man-Made Origin.

The work to improve the emergency preparedness and response system continues in the Republic of Belarus, taking into account the construction and preparation for commissioning of the first Belarusian Nuclear Power Plant.

The Internal and External Emergency Plans for the Belarusian Nuclear Power Plant were developed and approved.

The Internal Emergency Plan was approved by the General Director of the Belarusian Nuclear Power Plant in May 2018 (revised version of the plan - in July 2020).

The External Emergency Plan was approved by the Resolution of the Government of the Republic of Belarus No. 211 dated March 22, 2018 (Plan of protective measures in case of a radiation accident at the Belarusian Nuclear Power Plant).

At the initiative of the Republic of Belarus, the IAEA experts studied the draft of the External Emergency Plan at the final stage of its development and gave a positive evaluation.

The External Emergency Plan establishes:

a list of measures to ensure emergency preparedness and response to nuclear and radiation accidents at the Belarusian Nuclear Power Plant at the national level;

coordination and cooperation mechanisms of the national state administration bodies, local administrations and self-government bodies, other organizations and citizens in the implementation of measures to protect the population and territories in case of nuclear or radiation accidents at the Belarusian Nuclear Power Plant;

measures to protect the population and territories in case of a nuclear or radiation accident at the Belarusian Nuclear Power Plant;

areas of emergency response and actions of the national state administration bodies, local authorities and self-government bodies, other organizations and citizens to protect the life and health of citizens, protection of the environment and protection of property in case of a nuclear or radiation accident at the Belarusian Nuclear Power Plant.

At the stage of development of the External Emergency Plan, a practical test of the plan was held on October 18-19, 2017, in Ostrovets district of the Grodno region within the framework of the national drills with the management bodies and the forces of the State System for Prevention and Elimination of Emergency Situations (SSES) to respond to radiation accidents and incidents.

The drills was attended by international observers from Latvia and Poland, representatives of the CSTO member states, and international organizations (IAEA, the International Red Cross, CSTO). The experts had an opportunity to get acquainted with the work of the SSES management bodies and forces both at the national and the local level.

In October 2018 Belarus hosted the IAEA mission to assess the preparedness to respond to nuclear and radiological emergencies (EPREV mission). During its work, the EPREV mission evaluated different aspects of preparedness and response to nuclear and radiological emergencies at the NPP, including caused by extreme natural impacts.

The mission came to the conclusion that well-functioning and reliable mechanisms in the field of emergency preparedness and response exist in Belarus, highlighted good and applicable practices, strengths and the areas that are to be improved.

Based on the mission results, the experts noted good practices, and prepared suggestions and recommendations to improve emergency preparedness and response system in line with modern international approaches. Report on the EPREV mission was made publicly available.

To implement the suggestions and recommendations of the EPREV mission, in March 2019, the Government of the Republic of Belarus developed and approved the Action Plan to Implement the IAEA Mission Recommendations and Suggestions for the Emergency Preparedness and Response to Nuclear and Radiological Emergencies in the Republic of Belarus.

In order to implement EPREV mission suggestions, a comprehensive drills on the Internal and External Plans of the Belarusian NPP was carried out, including testing their consistency.

F.6. Decommissioning

Article 26. Decommissioning

Each Contracting Party shall take appropriate measures to ensure safety of a nuclear unit decommissioning. Such measures include:

i) availability of qualified personnel and adequate financial resources;

ii) application of the provisions of the article 24 concerning radiation protection, discharges and unplanned and uncontrolled releases during operation;

iii) application of the provisions of the article 25 for emergency preparedness; and

iv) maintaining documented accounting of the information important for decommissioning.

In accordance with the requirements of the Laws of the Republic of Belarus "On Nuclear Power Use" and "On Radiation Safety", a complex of measures for safe decommissioning of a unit must be stipulated during its design.

The operating organization creates a fund for decommissioning of the unit to carry out the works on the unit decommissioning. Unit decommissioning fund is only used to finance the measures provided for in the program for decommissioning, early decommissioning or limiting the performance of the unit.

Five years before the expiry of normative lifetime of the unit, established by the design, the operating organization develops a program on decommissioning of the unit, which should include procedures for dismantling of the facilities, management of nuclear materials, spent nuclear materials and (or) radioactive waste, as well as measures of further control and state supervision.

The plant decommissioning program is accorded with the public authorities regulating the safe use of nuclear power and is submitted by the national state administration body or other state organization in charge of the plant, for approval of the authority or official who made the decision about the construction of the plant.

Before the expiration of the design service lifetime the operating organization must ensure the development of the plant decommissioning project, including:

organization of works on safe disposal of SNF from storage facilities and its subsequent removal from the site;

decontamination to reduce the overall level of exposure of personnel and the public during the work;

dismantling of equipment at the plant site;

radioactive waste management;

organizational and technical measures to ensure radiation safety. At the same time, the measures should be stipulated at the engineering stage to ensure the non-exceedance of the established limits for individual doses to personnel performing work on the unit under decommissioning;

assessment of radiation impact on the environment during the work;

possibility of further use of the site, dismantled equipment and materials;

number and qualifications of staff required for the work;

safety measures in case of possible accidents in during plant decommissioning;

organizational and technical measures to ensure physical protection.

The limits of the operation of the main equipment and the criteria of its replacement should be substantiated at the development stage.

Before the start of engineering work on the plant decommissioning, a quality assurance program for work must be designed.

Information on the planned activities related to the decommissioning of the facility for the radioactive waste management, is contained in the Safety Analysis Report.

Work on decommissioning must be carried out by specially trained personnel of the facility or by personnel of other organizations in the manner prescribed by law.

Section G. SAFETY OF SPENT FUEL MANAGEMENT

G.1. General Safety Requirements

Article 4. General Safety Requirements

Each Contracting Party shall take appropriate measures to ensure that at all stages of spent fuel management the corresponding protection of individuals, society in general and the environment from radiological hazards must be implemented.

Thus, each Contracting party takes corresponding measures:

i) to provide proper focus on the issues of criticality and removal of residual heat generated during the spent fuel management;

ii) to ensure that the generation of radioactive waste associated with spent fuel management is maintained at the minimum practicable level corresponding to the approved policy for fuel cycle;

iii) to take into account the interdependence of the various stages in spent fuel management;

iv) to envisage effective protection of individuals, society and the environment, by applying of the suitable protective methods at the national level as approved by the regulatory authority within the framework of national legislation which has due regard to the internationally endorsed criteria and standards;

v) to consider biological, chemical and other risks that may be associated with spent fuel management;

vi) to strive to avoid actions that impose reasonably predictable impacts on the future generations greater than those permitted for the current generation;

vii) to avoid imposing undue burden on the future generations.

Measures to ensure appropriate protection of the population, workers and the environment from radiation exposure associated with spent nuclear fuel management are established by the regulatory framework of the Republic of Belarus.

A set of measures to ensure nuclear safety and removal of residual heat generated during the spent nuclear fuel management, provided by the Rules of safe storage and transportation of nuclear fuel at the complexes of spent nuclear fuel storage systems, and TCP 545-2014 “Ensuring Safety of Spent Nuclear Fuel Dry Storage Facilities”.

Requirements to minimize the generation of radioactive waste are established by the provisions of the following documents:

Law of the Republic of Belarus “On Radiation Safety”;

norms and rules for ensuring nuclear and radiation safety “Safety of Radioactive Waste Management. General Provisions”;

sanitary norms and rules “Requirements for Ensuring the Radiation Safety of Personnel and the Public when Radioactive Waste Management”, and other technical regulatory legal acts.

The legal and regulatory framework in force in the Republic of Belarus and governing the site selection, design, construction, operation, decommissioning of spent fuel management systems allows to ensure safety at all stages of spent fuel management.

Implementation of measures aimed at protecting the public, personnel and the environment, including resulting from emissions and discharges during operation of facilities for spent nuclear fuel management, is ensured by the operating organization and substantiated in the Safety Analysis Report.

Physical, chemical, toxic, fire and explosion, and other important safety-related risks are taken into account when spent nuclear fuel management.

Prevention of unreasonable burdening of future generations with the need to ensure safe management of spent nuclear fuel is implemented through the regulatory requirements in the field of nuclear and radiation safety, presented in section E.

G.2. Existing Facilities

Article 5. Existing Facilities *Each Contracting Party shall take appropriate measures to review safety of any spent fuel management facility existing at the time the Convention enters into force for that Contracting Party and to ensure that, if necessary, all reasonably practicable improvements are implemented to improve safety of such a facility.*

Safety of the spent nuclear fuel management facilities is ensured by a set of measures for the site selection, establishment of the sanitary protection zone and the surveillance zone, design, reliability of the equipment, control over its condition, as well as the organization and performance of works in accordance with the requirements of the regulatory legal acts, including technical regulatory legal acts, operational documents, professional qualifications, psychological readiness and discipline of the personnel.

G.2.1 Unit for Spent Nuclear Fuel Management “Iskra”

All necessary measures were implemented in the Republic of Belarus to ensure proper protection of workers, population and environment from radiological hazards associated with storage of spent fuel at the facility for spent nuclear fuel “Iskra” of the scientific establishment “JIPNR - Sosny” before sending it to the Russian Federation in 2010 and decommissioning of the facility in 2018.

G.2.2 Belarusian NPP

A set of measures to ensure safe management of spent nuclear fuel at the Belarusian NPP is ensured by design solutions.

After discharge from the reactor, the spent nuclear fuel will be sent to the SNF reactor storage system. This system is a cooling pool, equipped with the necessary equipment and systems.

System of SNF reactor storage is intended for cooling of the spent nuclear fuel discharged from the reactor, to reduce the activity and residual energy release of spent heat emitting assemblies to acceptable values, allowing their transportation.

The main functions of the system of SNF reactor storage are:

locating the SNF discharged from the reactor at an overload, and locating of an emergency discharge of the core fuel;

cooling (storage) of spent nuclear fuel till its removal from the reactor compartment;

residual heat removal from SNF;

ensuring the biological protection of personnel from the fuel stored in the cooling pool.

The SNF storage system ensures its storage in the reactor building of the power unit for 10 years, taking into account the planned overloads and unloading of the entire core at any time during the NPP operation.

After cooling the spent nuclear fuel in the SNF storage system to the parameters that allow its transportation from the NPP to the reprocessing plant for processing, the spent heat emitting assemblies are transported using the transportation packaging similar to TUK13/1V.

In accordance with the Strategy for Spent Nuclear Fuel Management of the Belarusian Nuclear Power Plant, the reprocessing should be carried out after interim storage of spent nuclear fuel in the territory of the Republic of Belarus (and/or the Russian Federation).

In order to create necessary infrastructure facilities for the interim storage of spent nuclear fuel, the mechanism for the implementation of the Strategy determines the creation of the cumulative facility in the territory of the Republic of Belarus as one of the primary measures, with the possibility of extension for the construction of an interim (long-term) SNF storage.

G.3. Selection of Sites for Suggested Facilities

Article 6. Selection of sites for suggested facilities

6-1 Each Party adopts appropriate measures to ensure that the following procedures were established and implemented in relation to the suggested facility:

i) evaluation of all corresponding site-related factors that could affect safety of such a facility during its service life;

ii) evaluation of possible impact of such a facility on the safety of individuals, society and the environment;

iii) provision of information to the public on the safety of such a facility;

iv) consultation with the Contracting Parties in the vicinity of such a facility, since there exists a possibility that they may be affected by that facility, and providing them, upon their request, with general data on the facility, required by them to assess the possible impact of the facility on the safety of in their territory.

6-2 Acting in this way, each Contracting party takes the appropriate steps to ensure that such facilities do not have unacceptable effect on other Contracting parties, by selecting a site in accordance with general safety requirements set forth in the article 4.

According to Article 14 of the Law of the Republic of Belarus “On Nuclear Power Use”, the decision on the location and construction of the facility is made by, including the suggestions of the interested national government bodies and other state organizations, taking into account the following requirements:

need for such a facility to solve the socio-economic problems of the Republic of Belarus and its separate regions, taking into account the possible consequences of locating such facilities;

absence of the threat to the facility safety from nearby civilian or military facilities;

conditions necessary for environmentally safe location of the facility, meeting the requirements of environmental legislation and the rational use of natural resources, which must be confirmed by the positive results of the state and other expertise, envisaged by the legislation;

other requirements established by the legislation.

In accordance with the provisions of the Law of the Republic of Belarus "On state ecological expertise, strategic environmental assessment and environmental impact assessment" No. 399-З dated July 18, 2016, the stationary facilities and (or) structures for the storage of nuclear materials, spent nuclear materials and (or) operational radioactive waste are the facilities for which the impact on the environment is assessed and the state environmental examination is carried out.

Assessment of the environmental impact, including taking into account including the potential transboundary impacts, is organized, funded by the customer and is carried out in the manner prescribed by the Regulations on the procedure for the assessment of the environmental impact, the requirements for the composition of the report on the environmental impact assessment, requirements for experts, carrying out the assessment of the environmental impact approved by the Resolution of the Council of Ministers of the Republic of Belarus No. 47 dated January 19, 2017.

Public discussion of the reports on environmental impact assessment are carried out in accordance with the Regulations on the procedure for organizing and conducting public discussion of environmentally significant projects, environmental reports on strategic environmental assessment, accounting of the environmentally significant decisions, approved by the Resolution of the Council of Ministers of the Republic of Belarus No. 458 dated June 14, 2016.

At this stage, no facilities for SNF management are defined, except for the ones foreseen by the project of the Belarusian NPP. The facility site selection procedure was not carried out and the site was not chosen.

G.4. Design and Construction of Facilities

Article 7. Design and construction of facilities

i) the design and construction of spent fuel management facility envisage suitable measures to limit possible radiological impacts on individuals, society in general and the environment, including those from discharges or uncontrolled releases;

ii) at the design stage, the conceptual plans were taken into account and, if necessary, also the technical provisions for the decommissioning of spent fuel management facilities;

iii) the technology used for the design and construction of a spent fuel management facility was supported by experience, tests or analysis.

According to Article 16 of the Law of the Republic of Belarus "On Nuclear Power Use" the design of the facility is developed in accordance with legal requirements on the construction, architecture and urban planning, legislation on the protection and use of land, legislation on subsoil, legislation on sanitary and epidemic well-being of the population, legislation on protection of population and territories from emergency situations, legislation on environmental protection and the rational use of natural resources, including technical regulatory legal acts.

The design of the facility should envisage measures for safe decommissioning, measures for safe management of nuclear materials, spent nuclear materials and (or) radioactive waste as a compulsory stage of any nuclear technology cycle.

The basic principles and requirements implemented in the design and construction of the facility are established by technical regulatory legal acts in the field of nuclear and radiation safety and Sanitary Norms and Rules presented in section E.

The system of technical and organizational measures to ensure the safety of the plant should be presented and substantiated in the Safety Analysis Report.

G.5. Facilities Safety Assessment

Article 8. Facilities Safety Assessment

Each Contracting Party shall take appropriate measures to ensure that:

i) a systematic safety assessment and an environmental assessment appropriate to the facility-related hazard and covering the entire period of its operation were carried out before construction of a spent fuel management facility;

ii) versions of the safety assessment and environmental impact assessment for those cases when deemed necessary to complement the assessments referred to in paragraph i) were prepared, upof and described in detail before the operation of a spent fuel management facility.

To obtain a license for siting, construction, operation of the spent fuel management facility, the operating organization ensures the development and submission of a safety analysis report of the facility to the regulatory authority.

The safety analysis should contain information about the executed safety analyzes for all accident groups considered. It should also contain a list of primary events, for which the facility is designed, a list of design and beyond design basis accidents, evaluation of design solutions that ensure the facility safety.

When designing the documents for the spent fuel management facility, the initial design stage should include the environmental impact assessment (project documents and report on the environmental impact assessment are subject to state environmental review).

G.6. Operation of Plants

Article 9. Operation of facilities

Each Contracting Party shall take appropriate measures to ensure that:

i) license to operate a spent fuel management facility is based upon appropriate assessments as specified in the Article 8, and depends on the completion of the commissioning program, confirming, that the facility is consistent according to the design and complies with the safety requirements;

ii) the operational limits and conditions defined based on the tests, operational experience and the assessments referred to in Article 8, were defined and revised as necessary;

iii) operation, maintenance, monitoring, inspection and tests of a spent fuel management facility are carried out in accordance with the established procedures;

iv) engineering and technical support in all safety-related fields was available throughout the service life of a spent fuel management facility;

v) the licensee timely reported to the regulatory body about the incidents significant from the point of view of safety;

vi) programs were developed for collection and analysis of the appropriate information on the operating experience and the results, and measures were taken, if necessary;

vii) decommissioning of the spent fuel management facility was prepared and updated, as necessary, using the information obtained during the service life of the facility, to be reviewed by the regulatory body.

The spent nuclear fuel management facilities can be operated only with special permission (license) to carry out activities in the field of nuclear energy and ionizing radiation sources issued by the Ministry for Emergency Situations of the Republic of Belarus.

One of the prerequisites for the license applicant is to ensure that the design of the facility status complies with design, construction, technological documents and the documents justifying nuclear and radiation safety.

The special permit (license) for the operation of the plant is issued only when the positive conclusion of examination of documents justifying nuclear and radiation safety is received.

Main documents that define the safe operation of the facility are technological regulations containing rules and basic techniques of safe operation, the general procedure of safety-related operations, as well as the limits and conditions of safe operation.

The operating organization ensures the development of technical regulations based on the design documents in accordance with the report of the safety analysis report.

Maintenance, repair, tests and checks of systems (elements) and equipment of the facility should be performed to maintain their working conditions and to prevent dangerous failures. These works are carried out according to the corresponding instructions, programs, schedules, process maps developed by the operating organization based on the design requirements and technical regulations, and must be documented. The maintenance, repair, test and inspection systems (components) and equipment must comply with the regulations established in the technological conditions that ensure the safety of the facility.

The information about failures of systems (components) and equipment, improper actions of the workers (personnel) should be collected, processed, analyzed, systematized and stored to ensure safety of the spent nuclear fuel management facilities. The results of analysis and systematization of the mentioned information should be included in periodic reports developed by the operating organization.

During the period of operation of the spent nuclear fuel management facility, the operating organization should organize the collection, organization and secure storage of information required for decommissioning of the facility.

The facility decommissioning program should be coordinated with the state authorities for the regulation of safety of the use of nuclear power and submitted by the operating organization for approval to the body or an official who made the decision on the construction of the facility.

The need for timely information about the occurring incidents, significant from the safety point of view, is envisaged by the legislation of the Republic of Belarus. According to Article 29 of the Law of the Republic of Belarus “On Nuclear Power Use”, in case of a radiation accident during the activities on nuclear power use, which led to the release of radioactive substances into the environment in excess of the limits, the operating organization, inter alia, shall immediately inform the citizens, public authorities on safety regulation during the use of nuclear power, local authorities and self-government bodies in the area of the emergency response and other public bodies.

G.7. Spent Fuel Disposal

Article 10. Spent fuel disposal

If, in accordance with its legislative and regulatory framework the Contracting party designates the spent fuel for disposal, the disposal of such spent fuel is carried out in accordance with the obligations embodied in Chapter 3, which relates to the radioactive wastes disposal.

Disposal of spent fuel in the Republic of Belarus is currently not provided for.

According to the Strategy for Management of the Spent Nuclear Fuel from the Belarusian Nuclear Power Plant, approved by the Resolution of the Council of Ministers No. 558 dated August 22, 2019 the currently preferred option of the SNF management is reprocessing of the SNF in the Russian Federation.

Section H. SAFETY OF RADIOACTIVE WASTE MANAGEMENT

H.1. General Safety Requirements

Article 11. General Safety Requirements

Each Contracting Party shall take appropriate measures to ensure that at all stages of radioactive waste management the corresponding protection of individuals, society in general and the environment from radiological hazards and other risks must be implemented.

Thus, each Contracting party takes corresponding measures:

i) to provide proper focus on the issues of criticality and removal of residual heat generated during the radioactive waste management;

ii) to ensure that the generation of radioactive waste is kept to the minimum practicable level;

iii) to take into account the interdependence of the various stages in radioactive waste management;

iv) to envisage effective protection of individuals, society and the environment, by applying of the suitable protective methods at the national level as approved by the regulatory authority within the framework of national legislation which has due regard to the internationally endorsed criteria and standards;

v) to consider biological, chemical and other risks that may be associated with radioactive waste management;

vi) to strive to avoid actions that impose reasonably predictable impacts on the future generations greater than those permitted for the current generation;

vii) to avoid imposing undue burden on the future generations.

In accordance with Article 38 of the Law of the Republic of Belarus "On Radiation Safety" the responsibilities of the ionizing radiation source user to ensure the radiation safety include:

to manage the ionizing radiation source in accordance with the requirements of the radiation safety legislation;

plan and carry out measures to ensure radiation safety;

arrange and implement industrial control to ensure radiation safety;

to assess and to register occupational doses;

regularly inform the personnel about the levels of ionizing radiation at workplaces, and on the amount of received radiation doses;

to develop and to approve standards for the permissible emissions and discharges of radioactive substances into the environment;

to provide bodies and institutions carrying out the state sanitary supervision, the justification of the limits of occupational exposure dose and public exposure;

to take the necessary measures to comply with the standards for permissible emissions and discharges of radioactive substances into the environment and to avoid exceeding the dose limits of occupational exposure and public exposure;

to provide training and examination on radiation safety;

to organize medical examinations of the personnel in accordance with the legislation on occupational safety and health;

to comply with the requirements (regulations) to eliminate the violations, made by the officials of the Ministry for Emergency Situations, as well as bodies and agencies exercising state sanitary supervision;

prior to the delivery of ionizing radiation source to apply for state registration of the ionizing radiation source type or to make sure that the state registration of this ionizing radiation source type was made previously;

to send a notification for registration (deregistration) of the ionizing radiation source in the unified state system for accounting and control of ionizing radiation sources;

to keep records and control of ionizing radiation sources in their use, and to ensure their safety;

to assess the state of radiation safety;

after the decision to terminate the operation of the sealed ionizing radiation source to ensure the return of the source to the manufacturer or the seller (supplier) in accordance with the terms of the contract or to transfer it on a contractual basis for processing, long-term storage or disposal;

to perform other obligations stipulated by this Law and other legislation acts.

The following must be ensured when management the radioactive waste:

implementation of processing, long-term storage and (or) disposal of the radioactive waste only at the radioactive waste management facilities;

location and construction of radioactive waste management facilities (by the Decision of the Council of Ministers of the Republic of Belarus taking into account the environmental impact assessment and suggestions of interested national state authorities);

the user of the ionizing radiation source (IRS) shall have an approved scheme for radioactive waste management, agreed with the state administration in the field of radioactive waste management, taking into account the characteristics and conditions of work carried out to plan and implement the measures to ensure radiation safety; Procedure for the development, coordination and approval of the radioactive waste management model is established by the Council of Ministers of the Republic of Belarus;

the use of vehicles for the transportation of radioactive waste that prevent the harmful effects of transported RW on the environment, human health and property. The transportation of the radioactive waste is allowed if the IRS user has the accompanying passport for the transportation of the radioactive waste;

during storage or disposal of radioactive waste ensure their reliable isolation from the environment, radiation safety in accordance with the rules and regulations on nuclear and radiation safety, specific sanitary and epidemiological requirements and design documents of the radiation facilities.

The norms and rules to ensure nuclear and radiation safety “Safety in the Radioactive Waste Management. General provisions” establish the requirements for design and operational documents, for radiation monitoring at the facilities, for placement for long-term storage (disposal) of radioactive waste, for quality assurance program, for the implementation of measures on the radiation accident elimination, and for accounting, control and inventory of the radioactive waste.

In accordance with the requirements of these norms and rules for radioactive waste management the following principles should be complied with:

to ensure an acceptable level of protection of workers (personnel) and the population from radiation exposure to the radioactive waste in accordance with the principles of justification, optimization and standardization;

to ensure an acceptable level of the protection of the environment from harmful radiation impact of radioactive wastes;

to take into account the interdependence between the various stages of radioactive waste management, which envisages that all activities - from generation to disposal of radioactive waste, including recycling, is considered as the components of a larger whole, and control elements for each stage are selected taking into account their compatibility with other stages;

to protect future generations, the essence of which is that the forecast levels of exposure for future generations due to radioactive waste disposal shall not exceed the permissible levels of public exposure established by the regulatory legal acts in force;

to protect the future generations from the unreasonable burden associated with the need to ensure the safety of radioactive waste management;

to monitor the formation and accumulation of RW (limit the formation and accumulation of RW at the minimum practicable level);

to prevent accidents and to reduce their consequences should they occur.

The operating organization should ensure safe management of all types of radioactive waste generated and (or) accumulated in the result of its activities during normal operation of the facility, during maintenance and repairs, as well as in case of violations of normal operation of the facility, including during emergencies. Safe management of radioactive waste should be ensured at all stages of the facility life cycle, including decommissioning or closure.

If the radioactive waste contains nuclear hazardous fissile nuclides, technical solutions and organizational measures should be envisaged aimed at ensuring the nuclear safety during management, in accordance with the requirements of the regulatory legal acts.

Requirements for the management of radioactive waste at the radiation facilities are established by specific sanitary and epidemiological requirements to the maintenance and operation of radiation facilities, approved by the Resolution of the Council of Ministers of the Republic of Belarus No. 168 dated March 24, 2020.

The requirements for radiation protection of the employees and the population when management the radioactive waste are established by the Sanitary Norms and Rules “Requirements for ensuring radiation safety of the personnel and the population when management the radioactive waste” approved by the Resolution of the Ministry of Health of the Republic of Belarus No. 142 dated December 31, 2015.

General safety requirements when management radioactive waste are established by the legislative acts provided in section E.

H.2. Existing Facilities and Past Practices

Article 12. Existing facilities and past practices

Each Contracting Party shall take appropriate measures to review:

i) the safety of any radioactive waste management facility existing at the time the Convention enters into force for that Contracting Party and to ensure that, if necessary, all reasonably practicable improvements are implemented to improve the safety of such a facility.

ii) the results of past practices to determine the need for any intervention on the reasons of radiation protection, taking into account that the reduction of the harmful effects resulting from the dose reduction should be sufficient to justify the harm and costs, including social costs associated with the intervention.

The task of ensuring the radiological safety is solved for all facilities listed in section D.

H.2.1 Specialized Enterprise for Radioactive Waste Management UE “Ekores”

In 2013, the building for RW processing with laboratories and storage of conditioned solid RW were commissioned based on the results of the second and third stages of the facility reconstruction.

These structures are designated for the activities on processing and conditioning of solid or liquid RW, both new and previously received for their transfer into a safe state, with subsequent long-term storage in the conditioned state.

The method for RW conditioning is the cementing of waste in a special packing set, for which the following may be used: 200-liter metal drums, metal containers, reinforced concrete containers.

Storage of conditioned RW is envisaged in storage sections for conditioned solid RW of the surface type, separated by categories. Before placing the package with RW for long-term storage, it is characterized and the information is entered into an electronic database.

For the justification of the radiation safety of the RW storage system, safety analysis report of the special RW management enterprise UE “Ekores” is developed and maintained, periodical assessment of the radiation safety is carried out. These works are carried out with technical support of the Scientific Institution “JIPNR-Sosny”.

A relevant task to improve the radiation safety of the Specialized Enterprise for Radioactive Waste Management UE “Ekores” is to perform work on the removal of RW from preserved first generation storage facilities (operated from 1963 to 1978) and of the second generation storage facilities (operated from 1978 to 2013) for their further transfer to a safe state by processing and conditioning.

A set of measures aimed at improving the safety of the Specialized Enterprise for Radioactive Waste Management UE “Ekores” was repeatedly discussed during meetings and is under the control of Emergency Situations Commission under the Council of Ministers of the Republic of Belarus.

To determine the objective level of radiation and the environmental safety, and to obtain the initial data for the development of the RW removal project, the work on comprehensive engineering and radiation survey (CERS) of the preserved and of the second generation storage facilities of the Specialized Enterprise for Radioactive Waste Management UE “Ekores” was conducted in 2019. Financing of works was carried out from the funds of the national and local budgets.

The Technical report on the results of the CERS contains:

the results of the engineering survey of the preserved storage facilities of the special enterprise, including compliance of the actual technical state of the storage facilities of the special enterprise with the design solutions and requirements of the regulatory legal acts, the technical state of the constructions and their residual resource, information on storage facilities preservation;

results of radiation survey of the preserved storage facilities of the special enterprise, including the radiation situation in the surface and underground sections of the storage facilities of the special enterprise, as well as in the surrounding and underlying soil; information on the number, physical state, morphological and radionuclide composition, total and specific activity of the placed RW; information

on radionuclide composition and volumetric activity of radionuclides in the air of the storage facilities of the special enterprise;

the current state of the radiation safety at the storage facilities of the special enterprise and forecast for the medium and long term development of the situation in terms of compliance with nuclear and radiation safety, the impact on the population and the possibility of an emergency;

suggested measures for the further management of the RW storage facilities of the special enterprise.

In general, according to the CERS results, the state of the storage facilities and the RW located in these facilities is satisfactory and does not require urgent measures.

CERS of the UE "Ekores" storage facilities was carried out within the framework of international cooperation with the organizations of the Russian Federation with the assistance of Joint Stock Company "Logistic Center NFC" of the State Nuclear Energy Corporation "Rosatom" (successor of the JSC "Federal Center for Nuclear and Radiation Safety"), and a joint stock company "Experimental and demonstration center for the decommissioning of uranium-graphite nuclear cores", Limited Liability Company AP "Quark", Federal State Unitary Enterprise "United Ecological and Technological Research Center for the RW Decontamination and Environmental Protection" (FSUE "Radon").

By the Decision of the CIS Economic Council of March 2, 2018, Joint Stock Company "Logistic Center NFC" received the status of the Basic organization of the CIS member states on management SNF, RW, and decommissioning of nuclear and radiation hazardous facilities.

This organization was established to develop suggestions for the authorized bodies on the creation, monitoring and implementation of environmentally friendly strategies of technological development and innovation policy on management SNF, RW and decommissioning of nuclear and radiation hazardous facilities in the CIS member states.

The main activities of the Basic organization are:

development of cooperation between CIS member states in the final stage of the nuclear fuel cycle;

provision of information to state administration and regulation authorities, and specialized organizations of the CIS member states in the field of nuclear energy use for peaceful purposes on a non-commercial basis;

professional retraining and advanced training of personnel in management SNF, RW and decommissioning of nuclear and radiation hazardous facilities;

assistance in the implementation of integrated projects and programs for RW and SNF management, decommissioning of nuclear and radiation hazardous facilities, including the decommissioning of radiation sources, storage facilities for nuclear materials, radioactive substances and RW in the CIS member states;

facilitate the activities on the construction and operation of storage facilities for nuclear materials and radioactive substances and RW, including SNF storage facilities in the CIS member states;

sharing, consolidation and systematization of scientific and technical knowledge in the field of SNF, RW management, and decommissioning of nuclear and radiation hazardous facilities;

expert and assessment activities in relation to nuclear and radiation hazardous facilities and facilities connected with nuclear fuel cycle;

study, compilation and distribution of the best practices regarding the SNF, RW management and decommissioning of nuclear and radiation hazardous facilities.

H.2.2 Decontamination Waste Disposal Facilities

Fences around the perimeter of the disposal grounds, and radiation hazard signs are installed to prevent unauthorized access to the disposal facilities for decontamination waste and to preserve the placed waste. A sanitary protection zone with at least 500 m radius is established around the disposal facilities, where all activities not related to the DWDF operation are prohibited.

After filling the bowl of the waste DWDF of II and III categories, they are preserved using the clay barriers and subsequent packing of the local soil with 1 m thick layer.

Service organizations implement a set of annual measures.

Groundwater level is monitored at DWDF's equipped with wells. Water samples are taken to monitor the transition of the radionuclides from the disposal facilities into the groundwater.

Systematic radiation control and monitoring of their physical condition is carried out at all operating and preserved DWDFs of all categories. Periodicity of radiation monitoring and supervision, scope of works on the arrangement of DWDF are stipulated by the Schedule of radiation control, supervision and maintenance items decontamination waste disposal facilities, which is developed by the special enterprises annually.

The following kinds of radiation control are established for DWDF-I and DWDF-II:

measuring the dose rate in permanent control points;

measurement of the specific activity of Cs-137, Sr-90 in water samples from control wells at least twice a year;

measuring the level of ground water in the control wells.

The dose rate is measured at the control points at DWDF-III.

Monitoring of DWDF of all categories includes examination of their technical state. The technical state of DWDF is inspected, as a rule, together with radiation monitoring, as well as after floods, heavy rains, high winds, etc. The state of the fences, top cover, radiation hazard signs, driveways is determined by visual inspection of the DWDF engineering systems.

H.2.3 Radioactive Waste Storage Facilities in Places of the Former Location of the Soviet Military Units

Since the publication of the previous national report, no new radioactive waste storage facilities in the former locations of the Soviet military units were found.

Currently, there is one radioactive waste storage facility (hereinafter - RWSF), formed in the former locations of the Soviet military units, “Gomel-30”

The structure of “Gomel-30” RWSF corresponds to the standard design of radioactive waste storage facility No. 62-II-04 (height 2.4 m from the ground surface, well diameter – 1.76 m). Radionuclide composition of the placed sources include radioactive isotopes Cs-137 and Co-60. The state of the structural radiation shielding materials at RWSF ensures the necessary tightness and protection against penetration of radionuclides into the environment. There is no threat of the exposure of the population and employees of the nearby facilities beyond the limits. The technical state and constructive scheme of the RWSF indicates the ability of the construction to perceive installation and transport load. There is no need for urgent measures for liquidation of this facility. Its safety is under permanent monitoring. The protected facility of the Ministry of the Interior is located in the territory where the RWSF is located, the unauthorized access to the territory is impossible.

H.2.4 Facility for Processing Liquid Radioactive Waste at the Scientific Institution “JIPNR-Sosny”

The unit is used for processing liquid radioactive waste generated in the result of research work at the scientific institution “JIPNR-Sosny”.

The unit processes liquid radioactive waste using the following methods: selective sorption, microfiltration, reverse osmosis, ion exchange.

The radioactive waste is conditioned using the cementing method.

The solid radioactive waste resulting from processing and conditioning are sent to long-term storage in the UE “Ekores”.

Safety of the liquid radioactive waste treatment facility is justified in the project, including the Safety Analysis Report.

In 2017-2020, the following measures were taken to ensure the safety of the facility:

technological regulations to clean liquid RW with complex chemical and radionuclide composition using new processing methods were developed;

technological regulations for conditioning RW of different chemical and radionuclide composition were developed;

additional premises for RW conditioning and temporary storage were commissioned;

new equipment and devices for RW conditioning and temporary storage systems were purchased;

additional equipment and devices for radiation and dosimetry control systems were purchased;

maintenance of the equipment is carried out annually, in accordance with the Equipment maintenance and repair plan.

H.2.5 Belarusian NPP

The design solutions provided for the following procedure to manage the RW of the nuclear power plant.

The high-level operational waste of the Belarusian NPP will be stored in the conditioned form in RW storage facility in the territory of the NPP throughout its operation.

Very low-level, low-level and intermediate-level operational RW in the conditioned form will be stored in RW storage facility in the territory of the NPP for 10 years. Upon expiration of the temporary storage of this RW in the NPP storage facility, it is planned to move the waste to the planned RW repository for storage and/or disposal.

The Strategy for management radioactive waste of the Belarusian Nuclear Power Plant envisages the construction of the first stage of the radioactive waste disposal facility (RWDF) till 2028. However, due to the decision to shift the commissioning date of the Belarusian NPP, the possibility of changing the terms of the construction of the RWDF first stage for the same period of time (2030-2031 years) is currently under analysis.

It should be noted that preliminary work on this issue is ongoing. In 2016 - 2018 within the framework of the pre-investment stage of the mentioned RWDF construction according to the agreement between the Ministry of Energy and the scientific institution “JIPNR-Sosny” the task to develop a conceptual design of disposal facility for very low-level, low-level and short-term intermediate-level radioactive waste of the Belarusian NPP, generated in the process of operation and decommissioning of the Belarusian NPP, based on the reference technologies and existing projects, was accomplished.

The leading Russian organization in the design of radioactive waste disposal facilities of the State Corporation “Rosatom” - St. Petersburg branch of the joint-stock company “Federal Center for Science and High Technologies “Special scientific and production association “Eleron” was invited to carry out this work under subcontract terms.

Currently, a conceptual design for the construction of the RWDF, in which the stage of the first stage construction is determined separately.

Within the conceptual design of the RWDF, standard solutions were developed without reference to a particular location of the facility, but taking into account the engineering-geological conditions in the areas of competitive and optimal RWDF sites. The means of conditioning the RW removed from the NPP were substantiated to ensure the compliance of the final RW packaging forms with the general acceptance criteria for disposal, technological solutions for management of the waste at the point of disposal were suggested.

The methods and structures of the RW disposal constructions, as well as basic technical solutions for the auxiliary buildings, facilities and systems of engineering support of the specified RWDF, ensuring safe and economically feasible disposal of RW generated from the two nuclear power units during 60 years of operation and when decommissioning the NPP, were justified based on the regulatory requirements and the alternative reference technologies and existing projects.

The suggested conceptual RWDF design included the following:

evaluation of its radiation safety during operation and long-term safety after closure (during the post-operational period), according to the possible scenarios for the disposal facilities evolution;

a list of possible accidents at RWDF and necessary emergency measures was identified;

the limits for RWDF safe operation on radionuclides emissions and discharges were justified;

suggestions for the organization of the radiation control and monitoring system for the RW disposal system during the RWDF operation and the post-operational period were presented.

The forecast estimate of the long-term safety of the RW disposal system after closure of the RWDF showed that the suggested RWDF concept ensures safe RW disposal in the period of potential danger of RW taking into account possible external impacts of natural and man-made origin.

The aggregate technical and economic parameters of the suggested RWDF project were evaluated both in general and for the first stage of construction.

The concept of the organization of work on the construction of this facility (including stages) and draft terms of reference for the investment feasibility study on the creation of RWDF was prepared based on the results of the technical concept for RWDF development.

As part of the changes in the Strategy for radioactive waste of the Belarusian NPP, the possibility of extending the RW disposal facility is worked out to ensure readiness for the disposal of waste generated at the plant during an accident.

The strategy stipulates carrying out research on the possibility of construction of the high-level RW disposal facility in deep geological formations. The sub-program 6 “Scientific Support of the Nuclear Power Development in the Republic of Belarus” of the State program “High Technologies and Equipment” for 2016-2020 includes the implementation of the task “To develop technical suggestions for the arrangement of system for management high-level and long-lived intermediate-level waste generated during the operation and decommissioning of the Belarusian NPP”. The purpose of this research is to forecast the generation of high-level and long-lived intermediate-level waste of the NPP, that require to be disposed in deep geological formations; and, together with the leading Russian organization in the field of design of RW management facilities (St. Petersburg branch of JSC “FCSHT “SSPA “Eleron” – VNIPIET” to make suggestions on the organization of the system for management such RW; develop the technical concept of their disposal.

The completion of the work within the framework of the specified task is expected by the end of 2020.

Based on the results of the work:

forecast data for the expected volumes, nomenclature, radiation characteristics and morphological composition of the high-level and long-lived intermediate-level radioactive waste generated during the operation and decommissioning of the Belarus NPP will be obtained;

possible options of technology for conditioning and long-term intermediate storage of radioactive wastes before disposal will be analyzed, optimal solutions will be selected, specifications for radioactive waste packaging will be developed taking into account the acceptance criteria for the disposal and transportation requirements;

possible technical solutions for the arrangement of the RW disposal system based on the international experience and existing projects will be analyzed.

Conceptual solutions in composition and design of the disposal facilities construction will be developed taking into account the stock materials by potentially suitable sites for the disposal of the radioactive waste of the corresponding class, aggregate assessment of its value will be carried out. The forecast schedule for the management of such radioactive waste when decommissioning the Belarusian NPP will be developed.

The final decision on the management of high-level radioactive waste will be made based on the results obtained during the implementation of this research projects.

H.3. Selection of Sites for Suggested Facilities

Article 13. Selection of sites for suggested facilities

1. Each Party adopts appropriate measures to ensure that the following procedures were established and implemented in relation to the suggested radioactive waste management facility:

i) evaluation of all corresponding site-related factors that could affect the safety of such a facility during its service life, and the disposal facility after its closure;

ii) evaluation of the possible impact of such a facility on the safety of individuals, society and the environment, taking into account possible changes in the state of the sites with disposal facilities after their closure;

iii) provision of information to the public about the safety of such a facility;

iv) consultation with the Contracting Parties in the vicinity of such a facility, since there exists a possibility that they may be affected by that facility, and providing them, upon their request, with general data about the facility, required by them to assess the possible impact of the facility on the safety of in their territory.

2. Acting this way, each Contracting party takes the appropriate steps to ensure that such facilities do not have unacceptable effect on other Contracting parties, by selecting a site in accordance with the safety requirements set forth in the article 11.

The Law of the Republic of Belarus “On Nuclear Power Use” and the Law of the Republic of Belarus “On Radiation Safety” establish requirements for site selection, design and construction of the radioactive waste management facilities.

Location and construction of radioactive waste management facilities are carried out by the decision of the Council of Ministers of the Republic of Belarus taking into account the environmental impact assessment and suggestions of interested national state authorities. The land plots and subsoil plots for locating such facilities are allocated in accordance with the legislation on protection and use of land, on subsoil.

Project design documents for the radioactive waste management facilities is developed in accordance with legal requirements on the construction, architecture and town planning, on environmental protection and rational use of natural resources, on the sanitary and epidemic well-being of the population.

When designing radioactive waste management facilities the factors that affect the safety of these facilities both during their operation and after decommissioning, are taken into account, and the impact of these facilities on the environment is assessed in accordance with an environmental legislation.

The requirements to the site selection, design of radiation facilities, including radioactive waste management facilities are defined by:

the norms and rules to ensure nuclear and radiation safety “Safety in the Radioactive Waste Management. General provisions”.

the norms and rules to ensure nuclear and radiation safety “Radioactive Waste Disposal. Principles, criteria and Basic Safety Requirements”;

sanitary norms and rules “Requirements for Ensuring the Radiation Safety of Personnel and the Public during Activities on the Use of Nuclear Energy and Ionizing Radiation Sources”;

sanitary norms and rules “Requirements for Ensuring the Radiation Safety of Personnel and the Public during Radioactive Waste Management”.

For construction of specialized facilities for radioactive waste management the selection of the following site is envisaged:

located in low populated flood-free areas;

with stable wind conditions;

restricting the spread of radioactive substances outside the industrial area of the facility due to its topographical, geological and hydrogeological conditions.

The site for the new facility must take into account its potential radiological, chemical and fire hazards for the population and the environment.

Locations of the specialized facilities for radioactive waste management must be assessed in terms of impact of meteorological, hydrological and seismic factors on the safety of the designed object in normal operation and in emergency conditions.

In accordance with the provisions of the Law “On state ecological expertise, strategic environmental assessment and environmental impact assessment”, the facilities for decontamination, reprocessing, storage and (or) disposal of the radioactive waste are the facilities for which the impact on the environment is assessed and which are subject to the state environmental examination.

environmental impact assessment, including taking into account the potential transboundary impacts, is organized, funded by the customer and is carried out in the manner prescribed by the Regulations on the procedure for the assessment of the environmental impact, the requirements for the composition of the report on the environmental impact assessment, requirements for experts, carrying out the assessment of the environmental impact approved by the Resolution of the Council of Ministers of the Republic of Belarus No. 47 dated January 19, 2017, taking into account the requirements of TCP 17.02-08-2012 “Environmental Protection and Natural Resources Management. Rules for Carrying out Environmental Impact Assessment (EIA) and Preparation of a Report”.

Public discussion of the reports on environmental impact assessment are carried out in accordance with the Regulations on the Procedure for Organizing and Conducting Public Discussion of Strategic Assessment of Environmentally Significant Decisions, reports on strategic environmental assessment, accounting of the environmentally significant decisions, approved by the Resolution of the Council of Ministers of the Republic of Belarus No. 458 dated June 14, 2016.

H.4. Design and Construction

Article 14. Design and construction of facilities

Each Contracting Party shall take appropriate measures to ensure that:

i) the design and construction of radioactive waste management facility envisage suitable measures to limit possible radiological impacts on individuals, society in general and the environment, including those from discharges or uncontrolled releases;

ii) at the design stage, the conceptual plans were taken into account and, if necessary, also the technical provisions for the decommissioning of radioactive waste management facilities, other than the disposal facility;

iii) at the design stage the technical specifications for closing the of facility for disposal were prepared;

iv) the technology used for the design and construction of a radioactive waste management facility was supported by experience, tests or analysis.

The requirements for the design of radioactive waste management facilities are established by the norms and rules to ensure nuclear and radiation safety "Safety in the Radioactive Waste Management. General Provisions", according to which:

safety in RW management must be ensured through the implementation of multi-barrier principle, based on the application of the system of physical barriers against the spread of ionizing radiation and radioactive substances into the environment;

the amount and purpose of the barriers should be identified and justified in the project design documents for the radiation facility and the nuclear energy use facility;

when designing RW management facilities, intended for long-term storage and (or) disposal of RW, the advantage should be given to security system, based on the passive principle of action and properties of inherent safety;

technical solutions and organizational measures to ensure the safe RW management must be presented and justified in the project design and in the safety analysis report of radiation facility and the nuclear energy use facility.

The project design documents of the radiation facility, a nuclear energy use facility shall determine:

types of radiation control;

radiation monitoring facilities;

parameters under control and their permissible values;

procedure and intervals of radiation monitoring;

list of technical measuring instruments for radiation monitoring, their technical specifications and corresponding methodological support;

the list of positions, the number and qualifications of employees (personnel) to carry out radiation monitoring;

procedure for the registration of the radiation monitoring results.

Information about the sources of the RW generation and their characteristics shall be given in the project design of the radiation facility, a nuclear energy use facility, including:

sources of gaseous RW, solid RW and liquid RW during normal operation of the radiation facility, a nuclear energy use facility, their number (amount), activity, composition and annual planned quantity (volume);

estimate of the quantity (volume) and activity of RW generated during the project (set forth) service life of the radiation facility, a nuclear energy use facility;

estimate of the quantity (volume), activity and composition of RW generated in case of deviations in normal operation of the radiation facility, nuclear energy use facility, including design basis accidents;

estimate of the quantity (volume), activity and composition of the accumulated RW, to be recycled (including conditioning) and stored;

estimate of the quantity (volume), activity and composition of RW generated during decommissioning or closing of the radiation facility, nuclear energy use facility.

The design documents for the radiation facility and a nuclear energy use facility should contain technical solutions and organizational measures to ensure the safe management of RW of each category (class), including:

measures to reduce the RW generation by its activity, weight (volume);

substantiation of RW collection, sorting (separation) methods;

substantiation for the selection of RW management systems, including recycling (including conditioning), storage of LRW and SRW, cooling and (or) cleaning of GRW;

substantiation of the ways of RW transportation at the site of the radiation facility, a nuclear energy use facility and (or) to the RW long-term storage sites or waste disposal;

limits and conditions of safe operation of RW management systems;

methods and means of radiation monitoring during RW management;

methods and means of process control, including methods and means to determine and control the RW properties;

measures to prevent emission and discharges of radioactive substances into the environment in quantities exceeding the established standards, and measures to reduce emissions and discharges of radioactive substances into the environment;

physical protection, accounting and control of RW.

H.5. Safety Assessment

Article 15. Facilities Safety Assessment

Each Contracting Party shall take appropriate measures to ensure that:

i) a systematic safety assessment and an environmental assessment appropriate to the facility-related hazard and covering the entire period of its operation were carried out before construction of a radioactive waste management facility;

ii) besides, a systematic safety assessment and environmental inspection for the period after the closing, and evaluation of results based on the criteria established by the regulatory body, was carried out before the construction of a disposal facility;

iii) versions of the safety assessment and environmental impact assessment for those cases when deemed necessary to complement the assessments referred to in paragraph (i) were prepared, upof and described in detail before the operation of a radioactive waste management facility.

The safety assessment includes the analysis of all radiation risks associated with normal operation and anticipated operational event s and accidents (with failures or internal or external events that threaten the safety of the facility or activity).

The radiation safety state is assessed during the planning and implementation of measures to ensure radiation safety, the analysis of the effectiveness of these measures by the national state administration bodies, other state organizations

subordinated to the Government of the Republic of Belarus, local executive and administrative bodies, and the user of an ionizing radiation sources.

Based on the safety assessment results, the necessary reasonable measures aimed at the implementation of the requirements of the legislation of the Republic of Belarus should be implemented in accordance with the program developed and approved by the operating organization.

Periodic safety assessment is envisaged for nuclear energy use facilities, RW storage facilities, and RWDF , which is carried out 10 years after the commissioning with subsequent periodic safety assessment every 10 years until the end of their operation. In the event of changes in operating conditions of the facility, which may affect its safety, an extraordinary assessment of its safety is carried out.

Legislation also establishes the requirement that the operating organizations of the radioactive waste management facilities shall develop a safety analysis report. The report is designed to substantiate the safety of the radioactive waste management facilities, both during their operation and after decommissioning.

The operating organization develops the report prior to commissioning of the radioactive waste management facility. The requirements for the structure and content of the safety analysis report on the substantiation of safety of the radioactive waste management facilities are contained in the corresponding rules and regulations on nuclear and radiation safety, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 64 dated December 13, 2010. The document establishes the list of data sufficient to substantiate the radiation safety of the population, personnel and the environment during operation of the facilities for radioactive waste management and after their closure.

The operating organization shall ensure the compliance of such report with the actual state of the activities on radioactive waste management throughout the service life of the facility.

In accordance with the provisions of the Law of the Republic of Belarus “On State Ecological Expertise, Strategic Environmental Assessment and Environmental Impact Assessment”, the facilities for decontamination, reprocessing, storage and (or) disposal of the radioactive waste are the facilities for which the impact on the environment is assessed and which are subject to the state environmental examination.

H.6. Operation of the Facilities

Belarusian NPP

The start-up of the power unit No. 1 of the Belarusian NPP is scheduled for 2021. Currently the installation and commissioning works on the equipment of the RW management system are at the final stage. The license for the operation of the power unit will be issued upon the confirmation of the readiness of the RW management systems in the design scope, and the ability to ensure collection, sorting, processing, conditioning, transportation and storage of RW in accordance with the Radioactive Waste Management Scheme.

Management scheme for the radioactive waste of the Belarusian NPP is designed in accordance with the Law of the Republic of Belarus “On Radiation Safety”. The scheme endorsed in 2020 by the state authorities in the field of radioactive waste management.

A quality assurance program for the operational radioactive waste management is implemented at the Belarusian NPP, establishing a set of quality assurance measures aimed at the implementation of the established criteria and safety guidelines when management operational radioactive waste.

In accordance with the rules and regulations to ensure nuclear and radiation safety “Safety regulations for management radioactive waste of nuclear power plants”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 43 dated October 12, 2017, the operational documents of the Belarusian NPP provides for separate collection, sorting, minimization of RW, reduction of the generation and transfer of radioactive waste to the state, optimally suitable for temporary storage and subsequent transfer for the disposal, including the minimization of the final (total) volume, minimization of the radiation impact on personnel, population and the environment, the definition of the characteristics of RW at all management stages, accounting and control at all stages of RW management, as well as putting on record and registration of ionizing radiation sources in the unified state accounting and control system.

The system for the analysis and use of the operation experience of the Belarus NPP and foreign NPPs and power industry facilities is developed and implemented at the Belarusian NPP, which can be used to provide secure, reliable and efficient operation of the Belarusian NPP.

The aforementioned rules and regulations to ensure nuclear and radiation safety establish the requirement to carry out annual report on current state of RW management. “Regulations on the operational activity performance indicators assessment” define the indicators of the Belarusian NPP operational safety (including radioactive waste management), the method of their calculation and analysis, identification of trends in the operational safety changes. The report on the current safety state is prepared by the State Enterprise “Belarusian NPP” annually.

“Regulations on the Operational Supervision” establish the procedures for testing the NPP systems, technical diagnostics, monitoring of the equipment and pipelines metal condition, technical inspection of the equipment and pipelines, analysis of the activities, performed by the personnel of the Belarusian NPP.

Belarusian NPP Safety Analysis Report contains a sequence of necessary actions for the NPP decommissioning, evaluation of the volume of waste generated, and covers the basic steps for dismantling, recycling and their time limits.

In accordance with the Law of the Republic of Belarus “On nuclear energy use”, the operating organization shall develop the NPP decommissioning program five years before the expiration of design service life of the NPP. This program shall be approved by the state authorities for regulation of safety when using nuclear energy, and approved by the President of the Republic of Belarus.

Decommissioning of RW storage facilities is regulated by the norms and rules for nuclear and radiation safety “Safety requirements when decommissioning

radioactive waste storage facilities", approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus No. 25 dated February 22, 2019.

H.7. Institutional Control Measures after Closure

In accordance with legal requirements the operating organization shall carry out systematic planning of the RWDF closure at all stages of its life cycle, prior to its closing. The drafting of the RWDF project should include the initial planning of the closure activities, and during its operation – the current planning. The results of the closure planning should be presented in the RWDF project and safety analysis report.

Activities on the RWDF closure should be carried out in accordance with the closure program (plan) and RWDF closure project. Design decisions for the RWDF closure should focus on bringing it to the state that will remain safe during the potential dangers of the RW located in it.

After closing the RWDF, the operating organization shall carry out periodic radiation control and monitoring of the RW disposal system. The duration of the periodic radiation control and monitoring of the RW disposal system is established and justified in the RWDF closure project, depending on the overall RW activity and its radionuclide composition.

Monitoring of the RW disposal system is stopped when the results confirm the safety of the RW disposal system.

When decommissioning the radioactive waste storage facilities (RWSF), the basic principles and general safety requirements established by the regulatory legal acts and mandatory technical regulatory legal acts on nuclear and radiation safety must be complied with.

According to the rules and regulations on nuclear and radiation safety "Safety requirements for the decommissioning of radioactive waste storage facilities", the decommissioning of the RWSF should be planned at all stages of its service life, preceding its decommissioning, through the development and subsequent updating of the RWSF decommissioning concept. This should take into account the history of the RWSF operation.

The RWSF should be decommissioned in accordance with the RWSF decommissioning program and project documents.

Upon the completion of all work, the operating organization shall ensure the conduct of the final examination in the scope required to determine the compliance of the actual state of the RWSF with the final state, specified in the decommissioning program and project documents.

The RWSF decommissioning is considered complete only after reaching the predetermined final state defined in the design documents for the RWSF decommissioning.

Section I. TRANSBOUNDARY MOVEMENT

Article 27. Transboundary movement

1.Each Contracting Party involved in transboundary movement shall take the appropriate measures to ensure that such movement is undertaken in a manner consistent with the provisions of this Convention and relevant binding international instruments.

In so doing:

i) a Contracting Party which is a State of origin shall take the appropriate measures to ensure that transboundary movement is authorized and takes place only with the prior notification and consent of the State of destination;

ii)transboundary movement through States of transit shall be subject to those international obligations which are relevant to the particular modes of transport utilized;

iii)a Contracting Party which is a State of destination shall consent to a transboundary movement only if it has the administrative and technical capacity, as well as the regulatory structure, needed to manage the spent fuel or the radioactive waste in a manner consistent with this Convention;

iv) a Contracting Party which is a State of origin shall authorize a transboundary movement only if it can satisfy itself in accordance with the consent of the State of destination that the requirements of subparagraph iii) are met prior to transboundary movement;

v)a Contracting Party which is a State of origin shall take the appropriate measures to permit re-entry into its territory, if a transboundary movement is not or cannot be completed in conformity with this Article, unless an alternative safe arrangement can be made.

2.A Contracting Party shall not license the shipment of its spent fuel or radioactive waste to a destination south of latitude 60 degrees for storage or disposal.

3.Nothing in this Convention prejudices or affects:

i) the exercise, by ships and aircraft of all States, of maritime, river and air navigation rights and freedoms, as provided for in the international law;

ii) rights of a Contracting Party to which radioactive waste is exported for processing to return, or provide for the return of, the radioactive waste and other products after treatment to the State of origin;

iii) the right of a Contracting Party to export its spent fuel for reprocessing;

iv) rights of a Contracting Party to which spent fuel is exported for reprocessing to return, or provide for the return of, radioactive waste and other products resulting from reprocessing operations to the State of Origin.

Transboundary movement of ionizing radiation sources (including radioactive waste, spent nuclear fuel) is carried out in accordance with the Law of the Republic of Belarus “On Radiation Safety”, other legislative acts, including the use of nuclear energy in the field of radiation safety, foreign economic activity, the customs regulation law, and international treaties of the Republic of Belarus.

The Law of the Republic of Belarus “On Radiation Safety” allows entry of radioactive waste for storage or disposal into the territory of the Republic of Belarus only for radioactive waste formed in the Republic of Belarus.

The Decision No. 240 of the Customs Union Commission (includes the Republic of Belarus, Kazakhstan and the Russian Federation) dated April 16, 2010 “On the Control of the Ionizing Radiation Sources Movement” establishes that in order to control the movement of ionizing radiation sources and to prevent their unauthorized import into the customs territory of the Customs Union, prior to elaboration of the common export control measures within the Customs Union, the Customs Union member states implement measures to control the movement of the ionizing radiation sources in accordance with their national legislation.

The Resolution of the Council of Ministers of the Republic of Belarus “On some issues concerning movement of certain kinds of goods across the state border of the Republic of Belarus” No. 1397 dated September 23, 2008, establishes that import and (or) export of ionizing radiation sources is allowed upon receiving the permission of

the Department for Nuclear and Radiation Safety of the MES of the Republic of Belarus. Besides, the mentioned Resolution establishes the following:

Regulations on the procedure and conditions for the Department for Supervision of Safety in Industry and the Department for Nuclear and Radiation Safety of the MES to issue licenses to import to the Republic of Belarus and (or) export from the Republic of Belarus, explosives, explosive devices and explosives for industrial use, ionizing radiation sources, restricted for movement across the State border of the Republic of Belarus, and the conclusions (authorization documents) on the import into the customs territory of the Eurasian Economic Union of toxic substances which are not precursors of narcotic drugs and psychotropic substances included in the common list of goods to which the non-tariff measures in trade with the third countries are applied under the Protocol on measures of non-tariff regulation in relation to the third countries to the Treaty on the Eurasian Economic Union, of May 29, 2014;

The list of ionizing radiation sources, restricted for movement across the State border of the Republic of Belarus for import into the Republic of Belarus and (or) export from the Republic of Belarus.

The Resolution of the Council of Ministers of the Republic of Belarus No. 156 "On Approval of the Unified List of Administrative Procedures Carried out by State Authorities and Other Organizations in Relation to Legal Entities and Individual Entrepreneurs, Introduction of Amendments to the Resolution of the Council of Ministers of the Republic of Belarus No. 193 dated February 14, 2009, and Invalidating Certain Resolutions of the Council of Ministers of the Republic of Belarus" establishes a list of documents and (or) information submitted by the interested parties to Gosatomnadzor to carry out administrative procedures for issuing (change in, amending) the permission for import and (or) export of ionizing radiation sources, restricted for movement across the State border of the Republic of Belarus based on non-economic issues.

Permission to transit through the Republic of Belarus or export from the Republic of Belarus of spent nuclear fuel can be issued only under the condition that the competent authority of destination state and the neighboring state provide consent to receiving these materials and has the corresponding administrative and technical capacities for such purpose.

The applicant shall submit to Gosatomnadzor a completed declaration for the shipped sealed radionuclide sources to obtain a permit for the export of sealed radionuclide sources of radiation hazard categories 1 and 2. The declaration is filled by the consignee and the competent authority of the consignee country and includes:

the validity period of the declaration;

the name and contact details of the consignee and the consignor;

description of the source;

information from the consignee about the license, powers and other permissions to receive the source (sources), compliance with the necessary national requirements for safe storage, use or sale of the sources specified in the declaration;

confirmation from the competent authority of the country of the consignee that it has taken note of the declaration.

The Resolution of the Council of Ministers of the Republic of Belarus No. 560 dated April 30, 2009 “On approval of the procedure of interaction of national government bodies, other state bodies and organizations in case of detection of ionizing radiation sources, as well as in cases of their detention at the crossing the State border of the Republic of Belarus” defines the competence of the state bodies when detecting ionizing radiation sources, and in cases of their detention at the crossing of the State border of the Republic of Belarus.

Joint decision of the Ministry of Health of the Republic of Belarus, the State Customs Committee of the Republic of Belarus, the State Border Committee of the Republic of Belarus No. 135/34/16 dated December 30, 2013 approves the Instruction on the procedure of actions (interaction) of the customs bodies of the Republic of Belarus, Border Guard Service of the Republic of Belarus, authorities and institutions exercising state sanitary supervision, during the sanitary and quarantine control at checkpoints at the State border.

The State Customs Committee of the Republic of Belarus and the State Border Committee of the Republic of Belarus carry out work to counter illegal cross-border turnover of nuclear and radioactive materials at the State border of the Republic of Belarus

Section J. DISUSED SEALED SOURCES

Article 28. Disused sealed sources

1.Each Contracting Party shall, in the framework of its national law, take the appropriate measures to ensure that the possession, remanufacturing or disposal of disused sealed sources takes place in a safe manner.

2.A Contracting Party shall allow for reentry into its territory of disused sealed sources if, in the framework of its national law, it has accepted that they be returned to a manufacturer qualified to receive and possess the disused sealed sources.

Sealed radionuclide sources not intended for further use are considered in the Republic of Belarus as radioactive waste.

Upon the expiration of the service life of the sealed radionuclide source its use or storage should be discontinued. In justified cases, subject to maintaining the radiation parameters within the limits satisfying the user, maintaining the integrity and the absence of detectable defects, and their signs, it is allowed to consider the extension of the service life of the closed radionuclide sources. To aofress the issue of extending the service life of the sealed radionuclide source, the user of the sealed radionuclide source should develop and agree with the authorities, exercising supervision in the field of radiation safety, a program of work on the re-examination of the sealed radionuclide source. The question of a possible extension of the operation of the sealed radionuclide source is reviewed by a commission composed of the representatives of the organization, using the source, the bodies exercising state supervision in the field of radiation safety, and if the sealed radionuclide source was manufactured in the Republic of Belarus, a representative of the manufacturer.

The Law of the Republic of Belarus No. 198-З “On Radiation Safety”, of June 18, 2019, determines the obligation of the ionizing radiation source user to ensure the return of the source to the manufacturer or the seller (supplier) in accordance with the terms of the contract or to transfer it on a contractual basis for processing, long-term storage or disposal after the decision to terminate the operation of the sealed ionizing radiation source.

Joint Belarusian-Russian Closed Joint-Stock Company “Isotope Technologies” delivers ionizing radiation sources outside the territory of the Republic of Belarus. The current practice envisages the return of decommissioned radioactive sources to the manufacturer in the Republic of Belarus. Such practice complies with the provisions of the Code of conduct to ensure safety and integrity of radioactive sources, to which the Republic of Belarus has joined, and the Guidance on management the decommissioned radioactive sources.

Long-term storage of sealed radionuclide sources after decommissioning is carried out at the UE “Ekores”.

Section K. GENERAL SAFETY IMPROVEMENT EFFORTS

The current system of the Republic of Belarus to ensure the safety of radioactive waste and spent nuclear fuel management continues to improve, taking into account the recommendations of the International Atomic Energy Agency, as well as international best practices.

On the part of the Government of the Republic of Belarus, the regulatory authority in the field of nuclear and radiation safety, and other involved state bodies and organizations the consistent action and effort, financial and other means for its development are planned and implemented.

Brief information about the measures adopted in the country to implement the proposals, noted during the review of the sixth national report of the Republic of Belarus on the implementation of the Convention.

Further development of the regulatory and legal framework

Republic of Belarus continues to improve the regulatory framework in the field of radioactive waste and spent fuel management and to bring it in line with the recommendations of the IAEA governing documents.

The Law of the Republic of Belarus “On Radiation Safety” was developed and implemented, Government resolutions, as well as resolutions of the state authorities were elaborated and approved in the development of the law.

The technical regulatory legal acts establishing safety requirements for the radioactive waste management were developed and implemented:

norms and rules for ensuring nuclear and radiation safety “Requirement to Ensure Safety when Decommissioning Radioactive Waste Disposal Facilities”.

norms and rules to ensure nuclear and radiation safety “Safety in Nuclear Materials Management. Requirements for Accounting and Control of Nuclear Materials”;

norms and rules to ensure nuclear and radiation safety “Acceptability Criteria for Radioactive Waste for Disposal”, etc.

Development and adoption of strategies to manage radioactive waste and spent fuel of the Belarusian NPP.

The Resolution of the Council of Ministers of the Republic of Belarus No. 558 dated August 22, 2019, approved the Strategy for the management of spent nuclear fuel of the Belarusian Nuclear Power Plant.

Improvement of safety at the specialized enterprise for management radioactive waste UE “Ekores” by removing and conditioning the radioactive waste from old storage facilities

In 2019 there was provided conduction of CERS of the suspended and decommissioned RW storage facilities.

According to the CERS results a list of priority measures to strengthen technical engineering structures for RW.

CERS results are the initial data for the further development of the technology of extracting RW from storages.

The Decision of the Council of Ministers of the Republic of Belarus determined the SSI "JIPNR-Sosny" as an organization for scientific support for extracting RW from old storage facilities.

Construction of the subsurface radioactive waste disposal facility

The reference technologies and existing projects were the basis to develop a conceptual design of the disposal facility for very low-level, low-level and short-term medium-level radioactive wastes, generated during the operation and decommissioning of the Belarusian NPP.

Within the conceptual design of the RWDF, standard solutions were developed without reference to a particular location of the facility, but taking into account the engineering-geological conditions in the areas of competitive and optimal RWDF sites.

The means of conditioning the RW removed from the NPP were substantiated to ensure the compliance of the final RW packaging forms with the general acceptance criteria for disposal; technological solutions for management of the waste at the point of disposal were suggested.

The suggested conceptual design included the radiation safety assessment of the RWDF during its operation and of long-term safety after its closure (in the post-operational period), according to the possible scenarios for the evolution of the disposal facilities. The list of possible accidents at RWDF and necessary emergency measures was determined; the safe operation limits of the RWDF on emissions and discharges of radionuclides was justified. The suggestions for the organization of the radiation control and monitoring system for the RW disposal system during the RWDF operation and the post-operational period were presented.

The forecast estimate of the long-term safety of the RW disposal system after closure of the RWDF showed that the suggested RWDF concept ensures safe RW disposal in the period of their potential danger taking into account possible external impacts of natural and man-made origin.

The evaluation of the aggregate technical and economic parameters of the suggested RWDF project in general and of its first stage was made.

The concept of the organization of work on the construction of this facility (including stages) and draft terms of reference for the investment feasibility study on the creation of RWDF was prepared based on the results of the technical concept for RWDF development.

Establishment of a procedure for public consultation in relation to the facilities of the management with radioactive waste and spent nuclear fuel

The Decree of the President of the Republic of Belarus No. 62 dated February 16, 2015 (as amended by the Decree of the President of the Republic of Belarus No. 70 dated February 18, 2019) established the holding of public hearings at the stage of decision-making on the regulation of activities in the field of ensuring safety in the use of atomic energy.

The procedure for involving the public in making environmentally significant decisions is also provided for by the environmental legislation of the Republic of Belarus (The Resolution of the Council of Ministers of the Republic of Belarus No.

458 dated June 14, 2016 “On approval of the Regulation on the procedure for organizing and conducting public discussions of projects of environmentally significant decisions, environmental reports on strategic environmental assessment, reports on environmental impact assessment, accounting for environmentally significant decisions and making amendments and additions to some decisions of the Council of Ministers of the Republic of Belarus”). These consultations with the public is the part of the environmental assessment of strategic decisions and planned activities for radioactive waste and spent nuclear fuel management.

Taking the necessary measures to sign an Intergovernmental Agreement with the Russian Federation

At the present time, a draft Agreement between the Government of the Republic of Belarus and the Government of the Russian Federation on cooperation in the field of transportation of nuclear and radioactive materials is being prepared.

Development and approval of strategies for radioactive waste and spent fuel management

The strategy for the management of spent nuclear fuel of the Belarusian NPP was approved by the Resolution of the Council of Ministers of the Republic of Belarus No. 558 dated August 22, 2019.

In the Republic of Belarus there is being developed a draft of amendments to the Strategy for radioactive waste management of the Belarusian nuclear power plant, approved by the Resolution of the Council of Ministers of the Republic of Belarus No. 460 dated June 2, 2015. A preparatory work on developing a strategy for radioactive waste management, which determines the main directions of activities for the safe management of radioactive waste generated in all economic branches is also underway.

In view of the implementation of the first nuclear power program, the important areas of the planned activities for the Republic of Belarus are:

further development of the regulatory and legal framework

implementation of the Strategy for management of the radioactive waste of the Belarusian Nuclear Power Plant, including the creation of the disposal facility for very low-level, low-level and medium-level radioactive waste;

implementation of the Strategy for management of spent nuclear fuel of the Belarusian Nuclear Power Plant, including the preparation of a joint agreement with the Russian side about the conditions of processing the SNF of the Belarusian NPP in the Russian Federation;

development of the strategy to manage all types of radioactive waste generated in the country;

determining the state administration authority in the field of radioactive waste management, responsible for the coordination of activities in this field in the country, and the creation of infrastructure for the implementation of the tasks, set for this body;

further development of human resources of the operating organizations, and the bodies exercising regulatory function in the field of nuclear and radiation safety;

continuation of work to improve safety at the specialized enterprise for management radioactive waste UE “Ekores” by removing and conditioning the radioactive waste from old storage facilities.

The Republic of Belarus plans to ensure the implementation of these priority tasks through the existing national programs in the field of nuclear and radiation safety, cooperation between the corresponding state administration bodies, and international cooperation with partner countries and international organizations.

With a view to the implementation of the principles of openness and transparency on the issues of nuclear and radiation safety, the Department for Nuclear and Radiation Safety of the Ministry for Emergency Situations of the Republic of Belarus informs the stakeholders through its website (http://www.gosatomnadzor.mchs.gov.by), the media and other means, in accordance with its Information and Communication Strategy (adopted in 2013 and updated in 2016).

The national reports of the Republic of Belarus within the framework of the obligations under the Joint Convention and the Convention on Nuclear Safety, annual reviews of the nuclear and radiation safety in the Republic of Belarus, regulatory legal acts, and other important documents and information are published on the web-site.

Belarus voluntarily requested and has hosted a number of IAEA missions, including a mission to assess the nuclear infrastructure (INIR) (for Phases 1 and 2 of the nuclear power program development) in 2012, for the evaluation of the regulatory infrastructure for nuclear and radiation safety (IRRS) in 2016, for the evaluation of the NPP site and external influences (SEED) in 2017, for emergency preparedness and response (EPREV) in 2018, for accounting and control of nuclear material (ISSAS) in 2019, for the operational safety (pre-OSART) in 2019, for assessment of the nuclear infrastructure (INIR) in 2020 (for phase 3 of the nuclear power program development).

The recommendations received during these are under implementation on planned manner. The next mission on the physical protection (IPPAS) was requested by Belarus and will be held in 2021. Besides, the post missions to evaluate the regulatory infrastructure of nuclear and radiation safety (IRRS post mission) and emergency preparedness and response (EPREV post mission) are planned to be invited in 2021.

* * *

In conclusion, it should be noted that the coordinated activities of countries within the framework of the obligations under the Joint Convention will contribute to the common aspirations to maintain high level of safety in radioactive waste and spent fuel management in each country and throughout the world.

Appendix 1

The amount of radioactive waste received for long-term storage at the Specialized Enterprise for Radioactive Waste Management UE “Ekores” in the period from 2017 to 2019.

Information about spent sealed radionuclide sources deposited for storage at the Specialized Enterprise for Radioactive Waste Management UE “Ekores” in 2017-2019.

Year	Alpha source, number of pcs. / activity, Bq	Beta source number of pcs. / activity, Bq	Gamma source number of pcs. / activity, Bq	Neutron source number of pcs. / activity, Bq
2017	984/ 1.11×10^{9}	389/ 5.84×10^{10}	469/ 4.98×10^{15}	-
2018	1623/ 2.57×10^{10}	223/ 8.24×10^{9}	353/ 1.64×10^{16}	1/ 6.39×10^{7}
2019	1761/ 1.00×10^{10}	187/ 1.61×10^{10}	388/ 1.08×10^{16}	2/ 1.25×10^{10}

Information about solid radionuclide sources deposited for storage at the Specialized Enterprise for Radioactive Waste Management UE “Ekores” in 2017-2019.

Year	Quantity, kg	Key radionuclides	Total activity, Bq
2017	10795.55	Co-60, Cs-137, Ir-192, Ra-226	1.01×10^{15}
2018	5529.77	Co-60, Cs-137, Ir-192, Ra-226	9.36×10^{11}
2019	8660.65	Co-60, Cs-137, Ir-192, Ra-226	2.14×10^{14}

Appendix 2

Summarized data on the inventory of decontamination waste of Chernobyl origin at DWDF-II (Decontamination Waste Disposal Facility)

Quantity and location	4 – Gomel region 4 – Mogilev region 1 – Brest region
Total area of land allotment, m^2	315,200
Total project capacity, m^3	244,465
Total waste activity by Cs-137, Bq	15.996×10^{11}
Total amount of waste, thousand tons	242.9

Appendix 3

The list of normative legal acts of the Republic of Belarus in the field of ensuring nuclear and radiation safety, regulating the management of spent nuclear fuel and radioactive wastes

International treaties of the Republic of Belarus

Conventions

1. Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency. Ratified by the Decree of the Presidium of the Supreme Council of the Republic of Belarus of 18.12.1986 No. 1216-XI.
2. Convention on the Physical Protection of Nuclear Material. Resolution of the Presidium of the Supreme Soviet of 14.06.1993 No. 2381-XII "On Succession of the Republic of Belarus with Regard to the Convention on the Physical Protection of Nuclear Material".
3. Vienna Convention on Civil Liability for Nuclear Damage. Ratified by the Law of the Republic of Belarus of 11.11.1997 No. 76-З.
4. Convention on Nuclear Safety. Accession by the Decree of the President of the Republic of Belarus of 02.09.1998 No. 430 "On Accession of the Republic of Belarus to the Convention on Nuclear Safety".
5. Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters. Approved by the Decree of the President of the Republic of Belarus of 14.12.1999 No. 726 "On Approval of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters".
6. Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. Ratified by the Law of the Republic of Belarus of 17.07.2002 No.130-З.
7. Convention on Environmental Impact Assessment in a Transboundary Context. Adopted by the Decree of the President of the Republic of Belarus of 20.10.2005 No. 487 "On the Adoption of the Convention on Environmental Impact Assessment in a Transboundary Context by the Republic of Belarus".

Treaties and Agreements

8. 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 Area of Radiation Safety of October 26, 1994.
9. Agreement between the Government of the Republic of Belarus and the Government of Austrian Republic on exchange of information in the area of nuclear safety and protection against ionizing radiation of June 9, 2000.

10. Agreement between the Government of the Republic of Belarus and the Cabinet of Ministers of the Ukraine on Early Notification of a Nuclear Accident and Cooperation in the Area of Radiation Safety of October 16, 2001.

11. Agreement on mutual assistance in the event of accidents and other emergencies at the electric power facilities of the member states of the Commonwealth of Independent States of May 30, 2002.

12. Agreement between the Government of the Republic of Belarus and the Government of the Republic of Latvia on cooperation in the area of prevention of catastrophes, natural disasters and other emergencies and elimination of their consequences of July 8, 2003.

13. Agreement on exchange of information on emergencies of natural and man-made nature, on information exchange in elimination of their consequences and assistance to the affected population of September 18, 2003. Signed by the member States of the Commonwealth of Independent States represented by governments.

14. Agreement between the Government of the Republic of Belarus and the Government of the Republic of Lithuania on cooperation in the field of prevention of catastrophes, natural disasters and major accidents, as well as elimination of their consequences. Signed in Vilnius on December 16, 2003. Entered into force on July 27, 2004. Ratified by the Law of the Republic of Belarus of July 5, 2004 No. 296-3 “On Ratification of the Treaty Between the Government of the Republic of Belarus and the Government of the Republic of Lithuania on Cooperation in the Field of Prevention of Catastrophes, Natural Disasters and Major Accidents, as well as Elimination of their Consequences”.

15. Agreement between the Government of the Republic of Belarus and the Government of the People’s Republic of China on cooperation in the area of peaceful use of atomic energy (2008).

16. Agreement between the Government of the Republic of Belarus and the Government of the Russian Federation on cooperation in the area of peaceful use of atomic energy (2009).

17. Agreement on the Customs Code of the Eurasian Economic Union (Signed in Moscow on 11.04.2017).

18. Decision of the Customs Union Commission of April 16, 2010 No. 240 “On Control Over the Movement of Sources of Ionizing Radiation”. (Adopted in Moscow on April 16, 2010).

19. Agreement between the Government of the Republic of Belarus and the Government of the Russian Federation on cooperation in the construction of a nuclear power plant on the territory of the Republic of Belarus of March 15, 2011.

20. Agreement between the Government of the Republic of Belarus and the Government of the Russian Federation on cooperation in the field of nuclear safety of February 1, 2013.

21. Agreement between the Government of the Republic of Belarus and the Government of the Republic of Armenia on information exchange and cooperation in the field of nuclear safety and radiation protection (2013).

22. 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 of December 13, 2013.

23. Agreement between the Ministry for Emergency Situations of the Republic of Belarus and the State Nuclear Power 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 on May 8, 2020, entered into force on May 25, 2020).

24. Memorandum of Understanding between the Ministry for Emergency Situations of the Republic of Belarus and the UAE's Federal Authority 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).

25. Memorandum of Understanding between the Department of Nuclear and Radiation Safety of the Ministry for Emergency Situations of the Republic of Belarus and the Nuclear Regulatory Authority of the Republic of Turkey on cooperation and information exchange in the field of nuclear safety and radiation protection (signed on August 17, 2020).

Legislative acts

Codes and Laws of the Republic of Belarus

1. Law of the Republic of Belarus of May 5, 1998 No. 141-З "On Protection of Population and Territories from Emergencies of Natural and Man-Made Origin".

2. Code of the Republic of Belarus of July 9, 1999 No. 275-З "Criminal Code of the Republic of Belarus".

3. Law of the Republic of Belarus of June 06, 2001 No. 32-З "On Transportation of Dangerous Goods".

4. Code of the Republic of Belarus of April 21, 2003 No. 194-З "On Administrative Violations".

5. Law of the Republic of Belarus of January 5, 2004 No. 262-З "On Technical Regulation and Standardization".

6. Law of the Republic of Belarus of July 30, 2008 No. 426-З "On the Use of Atomic Energy".

7. Law of the Republic of Belarus of November 9, 2009 No. 53-З "On Amendments and Additions to Certain Laws of the Republic of Belarus on the Use of Atomic Energy".

8. Law of the Republic of Belarus of January 7, 2012 No. 340-З "On the Sanitary and Epidemiological Welfare of the Population".

9. Law of the Republic of Belarus of May 26, 2012 No. 385-З "On the Legal Regime of Territories Exposed to Radioactive Contamination as a Result of the Disaster at the Chernobyl Nuclear Power Plant".

10. Law of the Republic of Belarus of May 11, 2016 No. 363-З "On Export Control".

11. Law of the Republic of Belarus of July 18, 2016 No. 399-З "On State

Environmental Expertise, Strategic Environmental Assessment, and Environmental Impact Assessment".

12. Law of the Republic of Belarus of June 18, 2019 No. 198-З "On Radiation Safety".

Decrees of the President of the Republic of Belarus

13. Decree of the President of the Republic of Belarus of December 29, 2006 No. 756 "On Some Issues of the Ministry for Emergency Situations".

14. Decree of the President of the Republic of Belarus of 12.11.2007 No. 565 "On Some Measures for the Construction of a Nuclear Power Plant".

15. Decree of the President of the Republic of Belarus of May 28, 2010 No. 279 "On the Determination of the State Body Responsible for the Fulfillment of Obligations Under Certain International Treaties".

16. Decree of the President of the Republic of Belarus of 01.09.2010 No. 450 "On Licensing Certain Types of Activities".

17. Decree of the President of the Republic of Belarus of 08.10.2010 No. 521 "On Creation of Conditions for Provision of Technical Assistance by the US Government during Export and Exchange of Nuclear Fuel".

18. Decree of the President of the Republic of Belarus of March 29, 2011 No. 124 "On Measures to Implement International Treaties in the Field of Civil Liability for Nuclear Damage".

19. Decree of the President of the Republic of Belarus of 15.09.2011 No. 418 "On the Location and Design of a Nuclear Power Plant in the Republic of Belarus".

20. Decree of the President of the Republic of Belarus of 02.11.2013 No. 499 "On the Construction of the Belarusian Nuclear Power Plant".

21. Decree of the President of the Republic of Belarus of February 16, 2015 No. 62 "On Ensuring Safety during the Construction of the Belarusian Nuclear Power Plant".

22. Decree of the President of the Republic of Belarus of 05.10.2017 No. 361 "On the Establishment of an Institution".

23. Decree of the President of the Republic of Belarus of 18.02.2019 No. 70 "On Supplementing the Decree of the President of the Republic of Belarus".

Normative legal acts of the Government of The Republic of Belarus

24. Resolution of the Council of Ministers of the Republic of Belarus of 10.04.2001 No. 495 "On Approval of the Regulation on the State System for the Prevention and Elimination of Emergency Situations".

25. Resolution of the Council of Ministers of the Republic of Belarus of 17.05.2004 No. 576 "On the Approval of Provisions on the Procedure for Conducting, Within the National System of Environmental Monitoring in the Republic of Belarus, Monitoring of Wildlife, Radiation Monitoring and the Use of Data from that Monitoring".

26. Resolution of the Council of Ministers of the Republic of Belarus of 23.09.2008 No. 1397 “On Some Issues of the Order of Movement of Certain Types of Goods Across the State Border of the Republic of Belarus”.

27. Resolution of the Council of Ministers of the Republic of Belarus of 02.04.2009 No. 411 “On Approval of the Regulation on the Procedure for Agreeing, Establishing and Marking the Boundaries of the Sanitary Protection Zone, Observation Zone of a Nuclear Installation and (or) Storage Facility and Requirements for their Protection and Use”.

28. Resolution of the Council of Ministers of the Republic of Belarus of April 30, 2009 No. 560 “On Approval of the Regulations on the Procedure for Interaction Between Republican State Administration Bodies, Other State Bodies and Organizations when Detecting Sources of Ionizing Radiation, as well as in Cases of their Detention while Moving Across the State Border of the Republic of Belarus”.

29. Resolution of the Council of Ministers of the Republic of Belarus of 30.04.2009 No. 561 “On the National Commission of Belarus on Radiation Protection Under the Council of Ministers of the Republic of Belarus”.

30. Resolution of the Council of Ministers of the Republic of Belarus of 04.05.2009 No. 574 “On Some Issues of Performing Work on the Use of Atomic Energy”.

31. Resolution of the Council of Ministers of the Republic of Belarus of August 27, 2010 No. 1242 “On Approval of the Regulation on the Conditions and Procedure for Developing Emergency Plans”.

32. Resolution of the Council of Ministers of 07.12.2010 No. 1781 “On Approval of the Regulation on the Procedure for the Documents Expertise Substantiating Nuclear and Radiation Safety during the Implementation of Activities in the Field of the Use of Atomic Energy and Sources of Ionizing Radiation”.

33. Resolution of the Council of Ministers of the Republic of Belarus of 03.12.2012 No. 1109 “On Approval of the Regulation on the Procedure for Issuing Permits for the Disposal of Radioactive Waste Contaminated with Radionuclides as a Result of the Disaster at the Chernobyl Nuclear Power Plant, as well as Other Waste, Products, Materials and Other Substances Contaminated with Radionuclides as a Result of the Disaster at the Chernobyl Nuclear Power Plant Below the Level Established by Regulatory Legal Acts, Including Technical Regulatory Legal Acts for Radioactive Waste”.

34. Resolution of the Council of Ministers of the Republic of Belarus of 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”.

35. Resolution of the Council of Ministers of the Republic of Belarus of 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”.

36. Resolution of the Council of Ministers of the Republic of Belarus of October 14, 2015 No. 854 “On the Issuance of Permits for the Right to Conduct Work in the Implementation of Activities for the Use of Atomic Energy” (Together with the "Regulation on the Procedure for Issuing Permits for the Right to Conduct

Work in the Implementation of Activities on the Use of Atomic Energy").

37. Resolution of the Council of Ministers of the Republic of Belarus of 02.06.2015 No. 460 “On Approval of the Strategy for Radioactive Waste Management of the Belarusian Nuclear Power Plant”.

38. Resolution of the Council of Ministers of the Republic of Belarus of 28.03.2016 No. 250 “On Approval of the State Program "Education and Youth Policy" for 2016-2020”.

39. Resolution of the Council of Ministers of April 21, 2016 No. 327 “On Approval of the State Program "Science-Intensive Technologies and Equipment" for 2016 - 2020”.

40. Resolution of the Council of Ministers of the Republic of Belarus of June 14, 2016 No. 458 “On Approval of the Regulations on the Procedure for Organizing and Conducting Public Discussions of Projects of Environmentally Significant Decisions, Environmental Reports on Strategic Environmental Assessment, Reports on Environmental Impact Assessment, Assessment of Environmentally Significant Decisions and Making Amendments and Additions to Some Decisions of the Council of Ministers of the Republic of Belarus”.

41. Resolution of the Council of Ministers of the Republic of Belarus of June 21, 2016 No. 479 “On Approval of the Concept of Creating a System of Situational Crisis Centers in the Republic of Belarus”.

42. Resolution of the Council of Ministers of the Republic of Belarus of 02.12.2016 No. 991 “On the Providing of Scientific and Technical Support to the Ministry for Emergency Situations in the Field of Nuclear and Radiation Safety”.

43. Resolution of the Council of Ministers of the Republic of Belarus of January 19, 2017 No. 47 “On Some Issues of State Environmental Expertise, Environmental Impact Assessment and Strategic Environmental Assessment”.

44. Resolution of the Council of Ministers of the Republic of Belarus of 22.03.2018 No. 211 “On Approval of the Plan of Protective Measures in Case of a Radiation Accident at the Belarusian Nuclear Power Plant (External Emergency Plan)”.

45. Resolution of the Council of Ministers of the Republic of Belarus of 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, Amending the Resolution of the Council of Ministers of the Republic of Belarus of February 14, 2009 No. 193 and Invalidation of Some Resolutions of the Council of Ministers of the Republic of Belarus”.

46. Resolution of the Council of Ministers of the Republic of Belarus of March 24, 2020 No. 168 “On Approval of Specific Sanitary and Epidemiological Requirements”.

47. Resolution of the Council of Ministers of the Republic of Belarus of 24.04.2019 No. 258 “On Approval of the Regulation on Public Hearings on the Safety Regulation of the Belarusian Nuclear Power Plant”.

48. Resolution of the Council of Ministers of the Republic of Belarus of June 14, 2019 No. 385 “On Physical Protection of Facilities of Nuclear Energy Use”.

49. Resolution of the Council of Ministers of the Republic of Belarus of July 29, 2020 No. 443 “On the Radiation-Hygienic Passport of the User of Ionizing

Radiation Sources".

50. Resolution of the Council of Ministers of the Republic of Belarus of August 22, 2019 No. 558 "On Approval of the Strategy for the Management of Spent Nuclear Fuel of the Belarusian Nuclear Power Plant".

51. Resolution of the Council of Ministers of the Republic of Belarus of August 21, 2020 No. 497 "On the Implementation of the Law of the Republic of Belarus of June 18, 2019 No. 198-З "On Radiation Safety".

Normative legal acts of ministries and other republican bodies of state administration

52. Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 30.04.2009 No. 20 "On Approval of the Form of the Accompanying Passport for the Transportation of Radioactive Waste and the Instruction on the Procedure for Issuing an Accompanying Passport for the Transportation of Radioactive Waste".

53. Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 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".

54. Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 30.11.2010 No. 54 "On Approval of the Instruction on the Procedure for Granting Permission to Carry Out Expert Safety Examination in the Field of the Use of Atomic Energy and Sources of Ionizing Radiation".

55. Resolution of the Ministry of Health of the Republic of Belarus, the State Customs Committee of the Republic of Belarus, the State Border Committee of the Republic of Belarus of December 30, 2013 No. 135/34/16 "On Approval of the Instruction on the Procedure for Actions (Interaction) of Customs Authorities, Border Service Bodies, Bodies and Institutions, Exercising State Sanitary Supervision during Sanitary and Quarantine Control at Checkpoints Across the State Border of the Republic of Belarus".

56. Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 05.06.2018 No. 38 "On Amendments and Additions to the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of January 20, 2012 No. 7".

57. Resolution of the Ministry for Emergency Situations of the Republic of Belarus of July 24, 2017 No. 33 "On Amendments and Additions to the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of September 28, 2010 No. 47".

58. Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 12.10.2017 No. 43 "On Some Issues of Radioactive Waste Management from Nuclear Power Plants".

59. Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 17.08.2018 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".

60. Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 25.04.2019 No. 35 “On the Lists of Works (Services) and Equipment for Nuclear Facilities”.

61. Resolution of the Ministry for Emergency Situations of the Republic of Belarus of April 16, 2020 No. 18 “On Approval of the Instruction on the Procedure for Training, Providing Training and Assessing Knowledge on the issues of Nuclear and Radiation Safety”.

Technical normative legal acts of ministries and other republican bodies of state administration

Norms and regulations

1. Nuclear Safety Rules for Critical Stands, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 30, 2006 No. 72.

2. Nuclear safety rules for subcritical stands, approved by the resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 30, 2006 No. 72.

3. Rules for ensuring the safety of research nuclear installations approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 30, 2006 No. 72.

4. Safety rules for storage and transportation of nuclear fuel at storage and management complexes of systems for spent nuclear fuel, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 30, 2006 No. 72.

5. Safety rules for storage and transportation of nuclear fuel at nuclear power facilities, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 30, 2006 No. 72.

6. Norms and rules for ensuring nuclear and radiation safety “Safety when Management Sources of Ionizing Radiation. General Provisions”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of May 31, 2010 No. 22.

7. Norms and rules for ensuring nuclear and radiation safety “Safety in the Management of Radioactive Waste. General Provisions”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of September 28, 2010 No. 47.

8. Rules for ensuring the safe transportation of dangerous goods by road in the Republic of Belarus, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 08.12.2010 No. 61.

9. 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”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 13.12.2010 No. 64.

10. Rules for ensuring the safe transportation of dangerous goods by automobile transport in the Republic of Belarus, approved by the Resolution of the

Ministry for Emergency Situations of the Republic of Belarus of 08.12.2010 No. 61 (as published by the Resolution of 23.02.2018 No. 6);

11. 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”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 30.12.2011 No. 73.

12. Norms and rules for ensuring nuclear and radiation safety “Disposal of Radioactive Waste. Principles, Criteria and Basic Safety Requirements”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of January 20, 2012 No. 7.

13. Rules for ensuring the safe transportation of dangerous goods by railroad transport in the Republic of Belarus, approved by the resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 28, 2012 No. 73.

14. Norms and rules for ensuring nuclear and radiation safety “Requirements for the Operating Organization for Planning and Carrying out Radiation Monitoring in the Event of a Nuclear or Radiological Emergency at a Nuclear Power Plant”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 12.04.2017 No. 11.

15. Norms and rules for ensuring nuclear and radiation safety “Requirements for the Composition and Content of the Measures Plan for the Protection of NPP Workers in the Event of a Radiation Accident (Internal Emergency Plan)”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 02.06.2017 No. 24.

16. Norms and rules for ensuring nuclear and radiation safety “Requirements for Categorizing Emergency Planning in the Event of a Nuclear or Radiological Emergency”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 21.08.2017 No. 38.

17. Norms and rules for ensuring nuclear and radiation safety “Requirements for the Composition and Content of the Measures Plan for the Protection of Personnel in the Event of an Accident at a Research Nuclear Facility”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 08.08.2018 No. 43.

18. Norms and rules for ensuring nuclear and radiation safety “Safety of Nuclear Power Plants in the Event of a Nuclear and (or) Radiological Emergency Situation. Requirements for Establishing the Class of an Emergency, the Procedure for Declaring an Emergency, Prompt Release of Information”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 02.10.2018 No. 52.

19. Norms and rules for ensuring nuclear and radiation safety “Safety of Nuclear Power Plants. Requirements for the Procedure for Investigating and Recording Violations in the Operation of Nuclear Power Plants”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 02.10.2018 No. 52.

20. Norms and rules for ensuring nuclear and radiation safety “Requirements for Ensuring Safety during the Decommissioning of Radioactive Waste Storage Facilities”, approved by the Resolution of the Ministry for Emergency Situations of

the Republic of Belarus of 22.02.2019 No. 25.

21. Norms and rules for ensuring nuclear and radiation safety “Safety in the Management of Nuclear Materials. Requirements for Accounting and Control of Nuclear Materials”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of February 22, 2019 No. 26.

22. Norms and rules for ensuring nuclear and radiation safety “Criteria for the Acceptability of Radioactive Waste for Disposal”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of July 16, 2019 No. 47.

23. Norms and rules for ensuring nuclear and radiation safety “Conceptual Design of the Physical Protection System for Nuclear Facilities”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of November 16, 2019 No. 60.

24. Norms and rules for ensuring nuclear and radiation safety “General Provisions for Ensuring the Safety of Nuclear Power Plants”, approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of April 13, 2020 No. 15.

Sanitary Norms and Rules

25. Sanitary rules and regulations 2.6.6.8-8-2004 “Treatment of Decontamination Waste Generated as a Result of Work to Overcome the Consequences of the Disaster at the Chernobyl Nuclear Power Plant (SPOOD-2004)”, approved by the Resolution of the Chief State Sanitary Doctor of the Republic of Belarus of November 23, 2004 No. 121.

26. Sanitary rules and regulations 2.6.1.13-60-2005 “Hygienic Requirements for Ensuring Radiation Safety of Personnel and Population during the Transportation of Radioactive Materials (Substances)”, Approved by the Resolution of the Chief State Sanitary Doctor of the Republic of Belarus of 30.12.2005 No. 284.

27. Sanitary norms, rules and hygienic standards “Hygienic Requirements for the Design and Operation of Nuclear Power Plants”, approved by the Resolution of the Ministry of Health of the Republic of Belarus of March 31, 2010 No. 39.

28. Sanitary Norms and Rules “Requirements for Radiation Safety”, approved by the Resolution of the Ministry of Health of the Republic of Belarus of December 28, 2012 No. 213.

29. Hygienic standard “Criteria for Assessing Radiation Exposure”, approved by the Resolution of the Ministry of Health of the Republic of Belarus of 28.12.2012 No. 213.

30. Sanitary Norms and Rules “Requirements for Ensuring Radiation Safety of Personnel and Population in the Implementation of Activities for the Use of Atomic Energy and Sources of Ionizing Radiation”, approved by the Resolution of the Ministry of Health of the Republic of Belarus of December 31, 2013 No. 137.

31. Sanitary Norms and Rules “Requirements for Ensuring the Radiation Safety of Personnel and the Public when Management Radioactive Waste”, approved by the Resolution of the Ministry of Health of the Republic of Belarus No. 142 of 31.12.2015.

Technical codes of practice

32. TCP 101-2007 Placement of nuclear power plants. The procedure for the development of a general quality assurance program for a nuclear power plant was approved by the Resolution of the Ministry of Energy, the Ministry of Architecture and Construction and the Ministry for Emergency Situations of the Republic of Belarus of 10.10.2007 No. 35/17/86.

33. TCP 113-2007 "Procedure for the Inspection of Territories, Facilities and Equipment for Decontamination Work", approved by the Order of the Ministry for Emergency Situations of the Republic of Belarus of December 10, 2007 No. 168.

34. TCP 144-2008 "Organization and Carrying out of Works on Decontamination of Territories, Facilities and Equipment", approved by the Order of the Ministry for Emergency Situations of the Republic of Belarus of 02.10.2008 No. 140.

35. TCP 17.02-08-2012 "Environmental Protection and Use of Natural Resources. Rules for Conducting an Environmental Impact Assessment (EIA) and Preparing a Report", approved by the Resolution of the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus of 05.01.2012 No. 1-T.

36. TCP 389-2012 "Rules for Physical Protection of Ionizing Radiation Sources", approved by the resolution of the Ministry for Emergency Situations of the Republic of Belarus, the Ministry of Internal Affairs of the Republic of Belarus, the State Security Committee of the Republic of Belarus of 18.05.2012 No. 31/142/20.

37. TCP 504-2013 "Organization and Carrying out of Works on Elimination of Facilities in the Territories Contaminated as a Result of the Chernobyl Disaster", approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 17, 2013 No. 69.

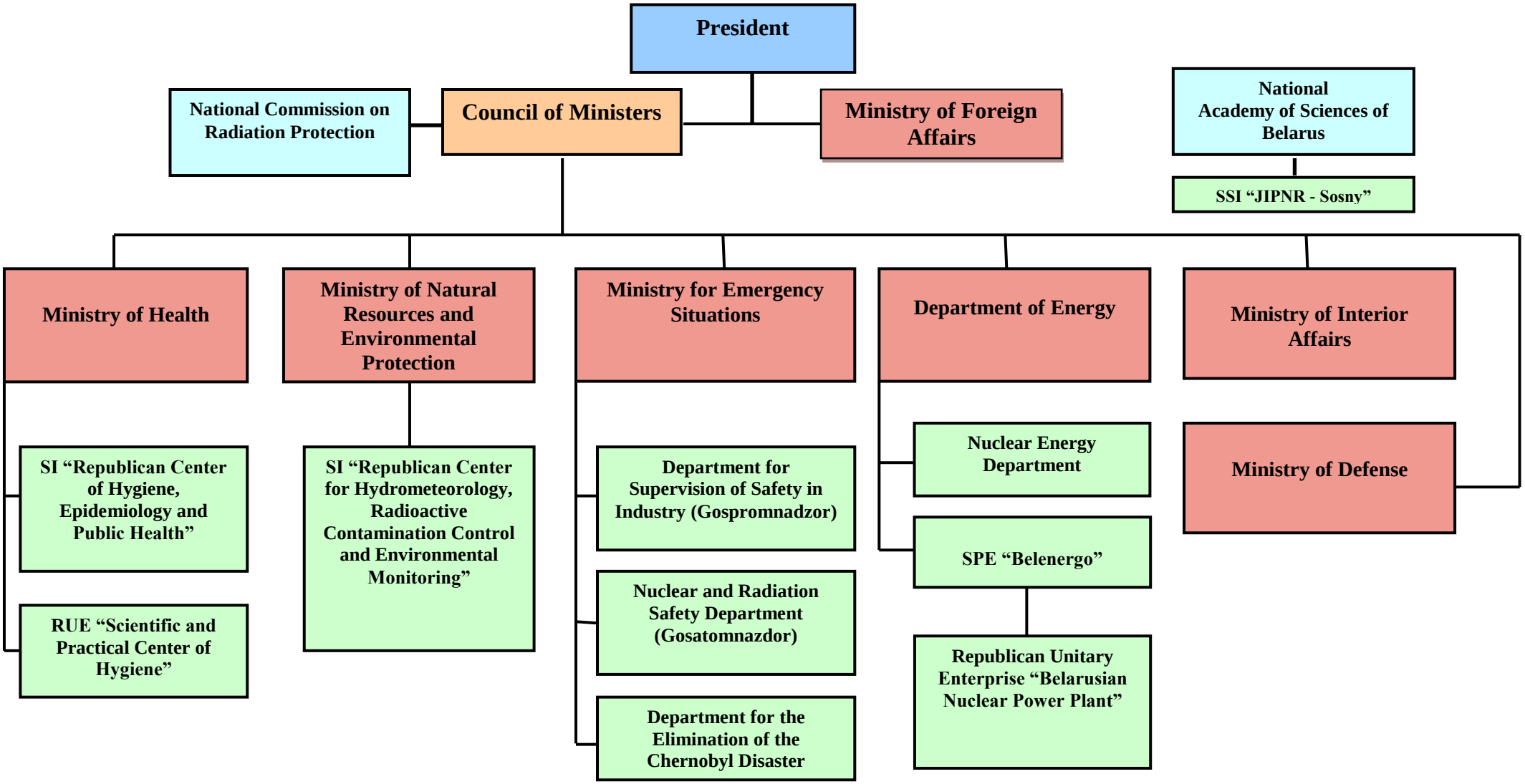
38. TCP 505-2013 "Procedure for Interaction in the Systems of Physical Protection of Nuclear Facilities", approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus, the Ministry of Internal Affairs of the Republic of Belarus, the State Security Committee of the Republic of Belarus of 19.12.2013 No. 70/553/55.

39. 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 for Emergency Situations of the Republic of Belarus and the Ministry of Internal Affairs of the Republic of Belarus of 07.04.2014 No. 8/110.

40. TCP 545-2014 "Ensuring Safety of Spent Nuclear Fuel Dry Storage Facilities", approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of 09.09.2014 No. 26.

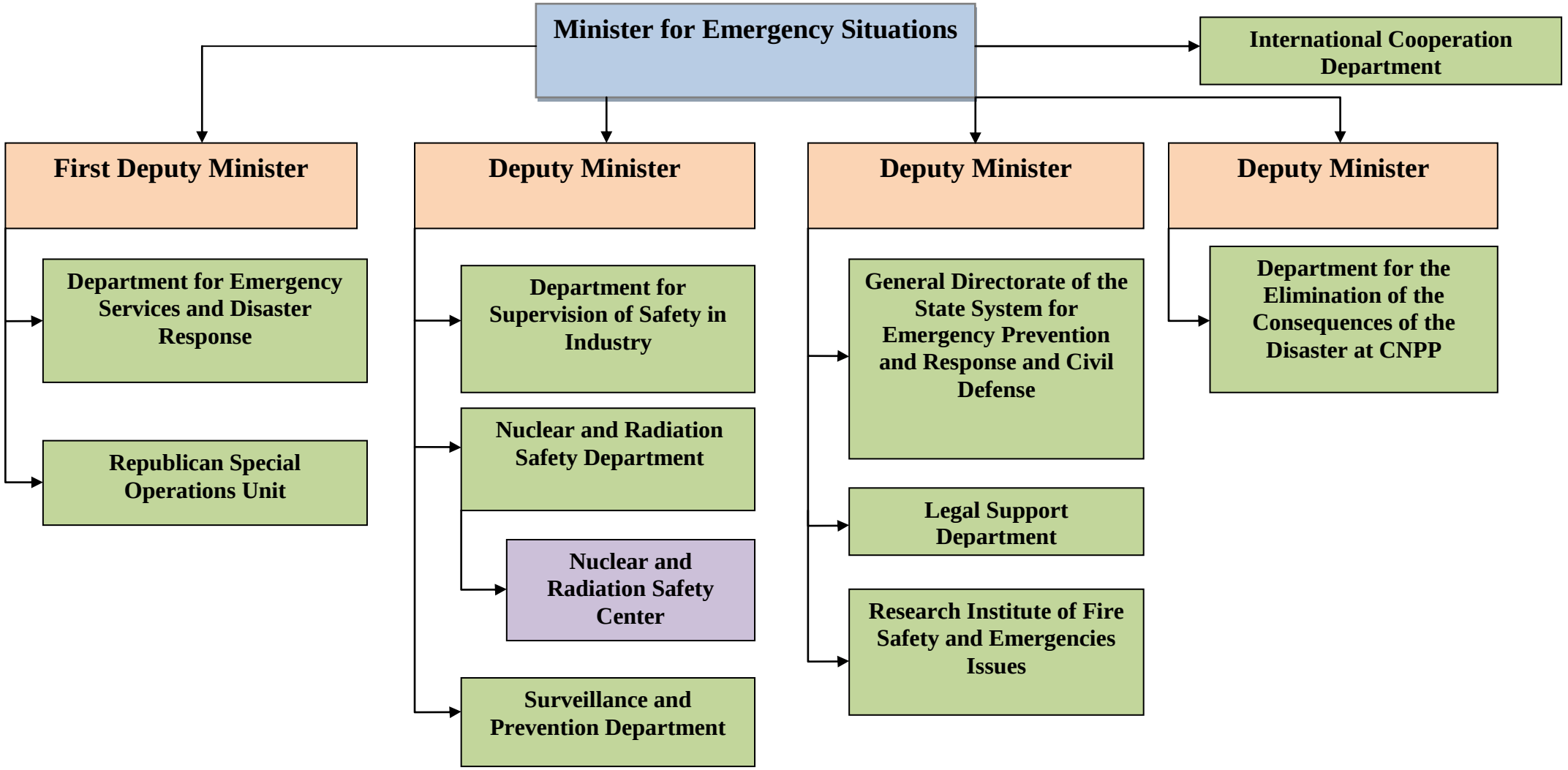
Appendix 4

State bodies and organizations involved into nuclear and radiation safety provision



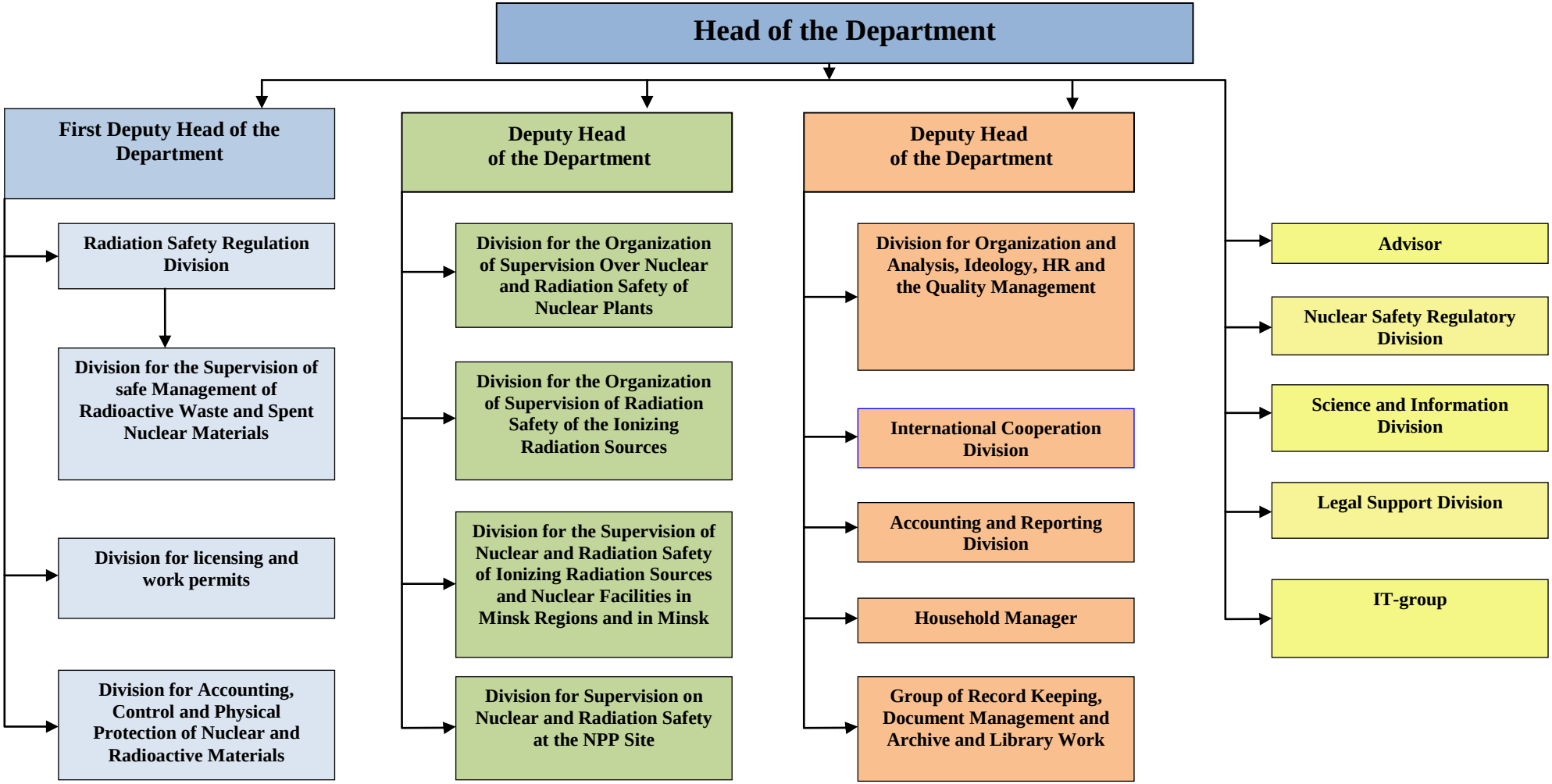
Appendix 5

Units of the Ministry for Emergency Situations involved in ensuring the nuclear and radiation safety



Appendix 6

Structure of the Department for Nuclear and Radiation Safety



Appendix 7

Articles of the Criminal Code, providing for the liability for violations of the radiation safety

Article	Contents
268	Concealment or deliberate distortion of information on environmental pollution
269	Land spoiling
278	Violation of safety rules when management genetically engineered organisms, environmentally hazardous substances and wastes
301	Violation of rules of production and technical discipline or safety regulations at facilities using nuclear energy
322	Illegal acquisition, possession, use, sale or destruction of radioactive materials
323	Theft of radioactive materials
324	Threat of dangerous use of radioactive materials
325	Violation of rules for radioactive materials management
326	Violation of the radiation control rules
333-1	Illegal crossing at the customs border of the Eurasian Economic Union or the State border of the Republic of Belarus of virulent, poisonous, toxic substances, radioactive materials, firearms, ammunition, explosives, explosive devices, weapons of mass destruction or means of their delivery, as well as other types of weapons and military equipment
463	Violation of the rules for management weapons, materials, substances and subjects representing increased danger to others

Articles of the Administrative Offenses Code of the Republic of Belarus, providing responsibility for offenses against public health

Article	Contents
15.4	Violation of safety rules when management genetically engineered organisms, environmentally hazardous substances and wastes
15.5	Violation of requirements for disposal of radioactive waste, and other waste products, materials and other substances contaminated with radionuclides
15.11	Land spoiling
16.3	Violation of the requirements of the legal regime of the radioactive contamination territory
16.4	Violation of the radiation control rules
16.5	Use of radiation equipment, that did not pass the specifications control, or which is in faulty condition, for diagnostic or therapeutic purposes
16.6	Violation of the regulatory legal acts in the field of nuclear and radiation safety