



**THE FIFTH 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**

Minsk
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LIST OF ABBREVIATIONS

NPP – nuclear power plant;

TRWSF – temporary radioactive waste storage facility;

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

Gosatomnadzor – Department for Nuclear and Radiation Safety of the Ministry for Emergency Situations of the Republic of Belarus;

SIR – source of ionizing radiation;

RHR – research heat reactor;

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;

SNF – spent nuclear fuel;

MNPP – mobile nuclear power plant;

DWDF –decontamination waste disposal facility;

RW – radioactive waste;

STB – State Standard of the Republic of Belarus.

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.

The Fifth National Report of the Republic of Belarus on implementation of obligations arising from the Convention requirements encompasses activity and events of the period following the year 2012.

Separate issues of the Convention's articles execution thoroughly presented in the four previous National Reports of the Republic of Belarus and unaltered over the past period received a brief review in the present Report.

Radiation sources, nuclear and radiation methods and technologies are widely used in industry, science, medicine and other branches of economy of the Republic of Belarus.

In the light of decision to develop nuclear energy industry the following events have taken place in the Republic of Belarus:

- in May 2012 the Ministry for Emergency Situations of the Republic of Belarus issued a license for placement of Units 1 and 2 of the Belarusian NPP;
- on July 18, 2012 the General Contract was signed for NPP construction which provides for commissioning of Unit 1 of the Belarusian NPP in 2018, and Unit 2 - in 2020;
- in September 2013 the Ministry for Emergency Situations of the Republic of Belarus issued a license for erection of bases and foundations of buildings and structures of Unit 1 of the Belarusian NPP;
- in February 2014 the Ministry for Emergency Situations of the Republic of Belarus issued a license for erection of bases and foundations of buildings and structures of Unit 2 of the Belarusian NPP;
- in April 2014 the Ministry for Emergency Situations of the Republic of Belarus issued a license for the main phase of construction of Unit 1 of the Belarusian NPP.

For the purpose of nuclear and radiation safety infrastructure improvement in 2013 the First Deputy Prime Minister of the Republic of Belarus assigned the Ministry of Energy of the Republic of Belarus to be the government body responsible for radioactive waste management.

The National Report is developed in accordance with INFCIRC/604/Rev.2 of September 17, 2012 and recommendations of the Second Extraordinary Meeting of the Parties which took place on May 12 to 13, 2014 in the IAEA headquarters in Vienna.

A1. Conclusions of the discussion of the Fourth National Report of the Republic of Belarus at the Fourth Review Meeting

In the course of discussion of the Fourth National Report of the Republic of Belarus for the Convention the following positive aspects were noted:

- reliable emergency preparedness and response system made in Belarus;

progress in improvement of the regulatory framework in the field of nuclear and radiation safety;

successful completion of the spent nuclear fuel transfer to the Russian Federation from MNPP “Pamir-630D”;

achievements in the works performed in cooperation with IAEA on search and bringing of radioactive waste storage facility to safe condition at former locations of the Soviet Union military forces deployment;

contribution of the State Program of staff training for nuclear energy industry of the Republic of Belarus for 2008–2020 as well as IAEA training courses to staff professional development.

In addition, the following recommendations for further development of the safety system of the Republic of Belarus for radioactive waste and spent nuclear fuel management were presented:

further development of legal framework;

completion of reconstruction of the specialized enterprise for radioactive waste management UE “Ekores”;

development of the radioactive waste and spent nuclear fuel management system for the planned construction of the Belarusian NPP;

detection of radioactive waste storage facilities at former locations of the Soviet Union military forces as well as their long-term safety assurance;

completion of decommissioning of the storage facility for spent nuclear fuel of MNPP “Pamir-630D”;

further performance of scheduled works for safety assurance of decontamination waste disposal facilities formed as a result of the works to overcome the consequences of the Chernobyl NPP catastrophe.

Information on the current status of recommendations implementation is presented in the respective sections of the National Report.

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 Contracting Parties. This report shall address measures taken to implement each of the obligations of the Convention. For each Contracting Party the report shall also address its:

- 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 of the Republic of Belarus “On the Use of Atomic Energy”, the use of atomic energy 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;

prohibition of nuclear weapons and other nuclear explosive devices production.

In addition to national legislation, spent fuel management policy is based on provisions of a range of 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 Government of the Russian Federation on Cooperation in Construction of a Nuclear Power Plant on the Territory of the Republic of Belarus signed in 2011, nuclear fuel spent in the reactors of the NPP’s power generating units purchased from Russian performing organizations shall be returned to the Russian Federation for reprocessing against conditions determined by the Parties in a separate agreement.

In accordance with the Russian legislation, Federal Center of Nuclear and Radiation Safety shall be an authorized organization for foreign trade contracts related to importing of fuel assemblies of nuclear reactors to the Russian Federation.

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”.

Resolution of the Council of Ministers of the USSR of November 1987 stopped the NPP testing and started its decommissioning works. Fuel assemblies unloaded from the reactor core from 1990 to 2010 were placed to the pool-type spent assemblies storage facilities within 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.

Currently, SSI “JIPNR – Sosny” is performing decommissioning of the spent nuclear fuel storage and management facility “Iskra”.

B.3. Radioactive Waste Management Policy

In accordance with the legislation of the Republic of Belarus the basic principles of radiation safety assurance during radioactive waste management shall be as follows:

- 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 by 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.

On the basis of the specified principles the following directions of the activity were determined:

- keeping radioactive waste formation at the lowest level practicable;

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

- functioning of the state system for radioactive waste accounting and control;

- scientific, technical and information support of radioactive waste management;

- development of documentation for radioactive waste management regulation;

- extension of international cooperation for 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

Radioactive waste management shall be performed by specialized enterprises with a respective special permit (license) issued by the Ministry for Emergency Situations of the Republic of Belarus:

Communal Unitary Enterprise “Ekores” (hereinafter – UE Ekores) performs management of disused sealed radionuclide sources and radioactive waste resulting from the use of radioactive substances and materials in industry, science, medicine and other economy branches, as well as their transportation across the republican territory;

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 catastrophe, as well as collection, transportation, storage and disposal of the associated radioactive waste. In addition, the specified enterprises perform arrangement and maintenance of such waste disposal locations.

SSI “JIPNR – Sosny” performs processing of liquid radioactive waste formed as a result of research work at the site of SSI “JIPNR – Sosny”.

B.5. Criteria Used to Categorize Radioactive Waste

In accordance with the Law of the Republic of Belarus “On Radiation Safety of Population”, radioactive waste is sources of ionizing radiation used in the course of economic or other activity of ionizing radiation sources users which they have no intention to use or cannot use for the previous purpose, as well as those generated during works for elimination of a radiation accident consequences in which radionuclides content exceeds rates established by normative legal acts, including by technical normative legal acts.

For radioactive waste resulting from the use of radioactive sources radioactive waste classification shall be performed in accordance with “Sanitary Rules for Radioactive Waste Management” (SPORO-2005) 2.6.6.11-7-2005.

By aggregative state radioactive waste can be divided into liquid, solid and gaseous ones.

Liquid RW are organic and inorganic liquids not further usable, pulp and sludge radionuclide specific activity of which exceeds values of the least significant specific activity in radioactive waste specified in SPORO-2005.

Solid RW are radioactive sources which spent their lives, not further usable materials, products, equipment, biological objects, soil, as well as solidified liquid RW, radionuclide specific activity of which exceeds values of the least significant specific activity in radioactive waste specified in SPORO-2005.

In case of known radionuclide content, waste is considered radioactive, if the sum of radionuclide specific activity against its least significant specific activity ratios exceeds 1.

In case of unknown radionuclide content, waste is considered radioactive, if its specific activity exceeds:

- 100 kBq/kg – for beta-ray sources;
- 10 kBq/kg – for alpha-ray sources;
- 1 kBq/kg – for transuranic nuclides.

Gamma-emitting waste with a known content is considered radioactive, if its surface (0.1 m) dose rate exceeds 0.001 mSv/h over the background with measurement conditions followed against approved methods.

By specific activity liquid and solid RW are divided into three categories (see Table B.5.1).

Table B.5.1. Classification of liquid and solid radioactive waste by its specific activity

Category of waste	Specific activity, kBq/kg		
	Beta-emitting radionuclides	Alpha-emitting radionuclides (excluding transuranic ones)	Transuranic radionuclides
Low-level	Less than 10^3	Less than 10^2	Less than 10^1
Intermediate-level	from 10^3 to 10^7	from 10^2 to 10^6	from 10^1 to 10^5
High-level	Over 10^7	Over 10^6	Over 10^5

Where waste can be attributed to different categories against radionuclides properties specified in the table, a higher category shall be applied to it.

For the purpose of solid waste presorting classification of solid radioactive waste by radioactive-contamination level (see Table B.5.2) and by gamma dose rate at a distance of 0.1 m from the surface shall be used:

Low-level – from 0.001 mSv/h to 0.3 mSv/h;

Intermediate-level – from 0.3 mSv/h to 10 mSv/h;

High-level – over 10 mSv/h.

Table B.5.2. Classification of solid radioactive waste by radioactive-contamination level

Category of waste	Radioactive-contamination level, particles/(cm ² ×min)		
	Beta-emitting radionuclides	Alpha-emitting radionuclides (excluding transuranic ones)	Transuranic radionuclides
Low-level	from 5×10^2 to 10^4	from 5×10^2 to 10^3	from 5 to 10^2
Intermediate-level	from 10^4 to 10^7	from 10^3 to 10^6	from 10^2 to 10^5
High-level	over 10^7	over 10^6	over 10^5

In addition to aggregative state and specific activity of RW, it is essential to take into account other physical and chemical properties; in particular, explosion and fire hazard, organic and inorganic properties, etc.

Classification of radioactive waste at NPP

In accordance with Sanitary Standards, Regulations and Sanitary-Hygienic Standards “Hygienic Requirements to Nuclear Power Plants Design and Operation”, liquid and solid NPP RW are classified by specific activity as specified in Table B.5.3. Where waste can be attributed to different categories against properties specified in the table, a higher category shall be applied to it.

B.5.3. Classification of solid and liquid radioactive waste by specific activity

Category of waste	Specific activity, kBq/kg		
	Beta-emitting radionuclides	Alpha-emitting radionuclides (excluding transuranic ones)	Transuranic radionuclides
Very low-level*	from 0.3 to 10^2	from 0.3 to 10^1	from 0.3 to 1
Low-level	from 10^2 to 10^3	from 10^1 to 10^2	from 1 to 10^1
Intermediate-level	from 10^3 to 10^7	from 10^2 to 10^6	from 10^1 to 10^5
High-level	over 10^7	over 10^6	over 10^5

* - In case of known radionuclide content, waste is considered to be very low-level, if its total specific activity exceeds or is equal to 0.3 kBq/kg, while upper limit of activity is determined by a sum of radionuclides specific activity against their least significant specific activity ratios, the sum shall not exceed 1.

If total specific activity of waste is less than 0.3 kBq/kg, it is relieved from radiation control. Its management shall be performed against industrial waste management legislation.

For the purpose of solid waste presorting at its generation places and before temporary storage it is recommended to use criteria of radioactive-contamination level, as specified in Table B.5.4, and those of gamma dose rate at a distance of 0.1 m from the surface with measurement conditions followed against approved methods:

Very low-level - from 0.0001 mSv/h to 0.001 mSv/h;

Low-level - from 0.001 mSv/h to 0.3 mSv/h;

Intermediate-level - from 0.3 mSv/h to 10 mSv/h;

High-level - over 10 mSv/h.

B.5.4. Classification of solid radioactive waste by radioactive-contamination level

Category of waste	Radioactive-contamination level, particles/(cm ² ×min)		
	Beta-emitting radionuclides	Alpha-emitting radionuclides (excluding transuranic ones)	Transuranic radionuclides
Very low-level	from $2 \cdot 10^2$ to $5 \cdot 10^2$	from 20 to $5 \cdot 10^1$	from 2 to 5
Low-level	from $5 \cdot 10^2$ to 10^4	from $5 \cdot 10^1$ to 10^3	from 5 to 10^2
Intermediate-level	from 10^4 to 10^7	from 10^3 to 10^6	from 10^2 to 10^5
High-level	over 10^7	over 10^6	over 10^5

In the framework of the State Program “Scientific Support of Atomic Energy Industry Development in the Republic of Belarus for 2009 - 2010 and for a period up to 2020”, it is planned to develop a standard document establishing a unified classification for institutional RW and RW of NPP. This document will be prepared in accordance with IAEA recommendations GSG-1 “Radioactive Waste Classification.”

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 Convention shall apply in the Republic of Belarus to the following issues:

safety of decommissioning of spent fuel storage facility “Iskra” located at the site of SSI “JIPNR – Sosny”;

safety of radioactive waste and spent fuel management at the Belarusian NPP under construction;

safety of management of 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 liquidation of consequences of the Chernobyl NPP catastrophe.

Section D. LISTS AND INVENTORIES

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 information on its mass and its total 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 of Spent Fuel Management Facilities

Spent nuclear fuel management facility “Iskra”

Spent fuel storage facility “Iskra” of SSI “Joint Institute for Power and Nuclear Research – Sosny” of the National Academy of Sciences of Belarus was closed in the late 2010 followed by the spent fuel dispatch to the Russian Federation under the intergovernmental agreement.

Currently, SSI “JIPNR – Sosny” is performing decommissioning of the facility.

Belarusian NPP

Decision on selection of site for NPP construction is made by Decree of the President of the Republic of Belarus No. 418 of September 15, 2011 on Siting and Design of Nuclear Power Plant in the Republic of Belarus according to which the structures of the nuclear power plant shall be located at the Ostrovets site, Grodno region.

Decree of the President of the Republic of Belarus No. 499 on Construction of the Belarusian Nuclear Power Plant was signed on November 2, 2013.

Expected commissioning:

Power unit 1 – 2018;

Power unit 2 – 2020.

D.2. List of Radioactive Waste Management Facilities

D.2.1 Specialized radioactive waste management enterprise UE Ekores

Specialized radioactive waste management enterprise UE Ekores is located in 2 km from Minsk. In terms of structure and process organization it is a typical near-surface storage facility of “Radon” type, the most common in the post-Soviet space.

The facility was created in 1963 to provide operation of research reactor of the former Nuclear Energy Institute of the Academy of Sciences of BSSR. Subsequently, being the only enterprise of this type, the facility performed storage of a wide inventory of radioactive waste resulting from radioactive isotopes used on the territory of the republic.

At the present time the following objects are located on the site of the facility:
 two mothballed “facilities” (operated from 1963 to 1979);
 two near-surface solid waste storage facilities (built and operated since 1977),
 in which there are four wells for disused sealed radiation sources placement;
 storage facility for sealed radiation sources placement (built and operated since
 2003);
 special laundry (built and operated since 1977, reconstructed in 2013);
 unit for radioactive waste processing with laboratories (built in 2013);
 conditioned solid radioactive waste storage facility (built in 2013).

Two “old” radioactive waste storage facilities of UE Ekores are rectangular reservoirs of 225 m³ each with monolith reinforced concrete walls and bottom covered with precast reinforce concrete plates. Plan dimensions 5.0×15.0 m, depth – 3 m. During mothballing the upper surface is covered by hot bitumen, and after that by the layers of asphalt (0,03 m) and soil (1,2 m).

Two near-surface storage facilities (built in 1977) have single-storey above-ground part (plan dimensions 12×30 m) with prefabricated metal frame. The underground part (830 m³) is a complex of 8 vaults more than 3 m deep, plan dimensions 6×6 m, of concrete monolith with precast concrete slabs. Storage facilities are equipped with overhead-traveling crane with load-carrying capacity of 3.2 tons. This crane is aimed for removing of one or two floor slabs for radioactive waste packages loading.

Design capacities of storage facilities are:

Acceptance – not more than 7.4 TBq per year, maximum specific activity – not more than 3.7 MBq/kg.

Wells for disused sealed radiation sources storage are equipped with an S-shaped pipe with a diameter of 108 mm for sources loading. The wells depth is 6 m. (No longer used due to commissioning of storage facility for sealed radiation sources in 2003).

Annually UE Ekores accepts up to 3 tons of low- and intermediate-level solid waste. It is loaded to the storage facility in the original package. The content of the filled tanks constitutes a conglomerate of different materials (plastic, glass, rag, etc.) contaminated by both short-lived and long-lived isotopes.

Sealed radiation sources delivered in containers unintended for bottom discharge, as well as some radiation equipment with no own protection (e.g., gamma flaw detectors), together with shielding are kept in a reinforced concrete section under the concrete slab, as UE Ekores possesses no reloading equipment.

Storage facility for sealed radiation sources (commissioned in 2003) is a single-storey building of 12×36 m which includes 7 wells for storage of high-level SIR (1 – for neutron sources and 6 – for gamma-ray sources) and 4 for alpha- and beta-ray sources.

The storage facility provides for a relatively simple technical procedure for sources extraction, in case relocation is required. This is achieved through the dismountable upper part of the well, with weight of separate fragments not exceeding two tons.

Design life of storage facilities - 20 years.

Unit for radioactive waste processing with laboratories (built in 2013) is a multifunction building of 37.2×30.0 m, consisting of a two-storey and a single-storey sections, as well as a driveway for a manipulator car.

The single-storey section is intended for solid and liquid radioactive waste processing and conditioning. The two-storey section contains technical and auxiliary rooms, airlocks and laboratories.

Currently, UE Ekores is in an effort to obtain a license for radioactive waste processing.

Conditioned radioactive waste storage facility, above-ground type, (built in 2013) is a two-storey unheated structure with plan dimensions of 31.0 × 450 meters. The bottom of the structure (made of monolith reinforced concrete) is divided into four separate sections and aimed for storage of conditioned radioactive waste of different categories of the total volume of 3060 m³. The upper floor of the storage facility is used for technical purposes.

Long-term storage of solid radioactive waste shall be performed in special containers where waste is conditioned by cementing.

Design life of the storage facility - 20 years.

See Appendix 1 for information on radioactive waste and spent radiation sources accepted for storage by UE Ekores for a period from 2011 to 2013.

D.2.2 SSI “JIPNR – Sosny” facility for liquid radioactive waste processing

Liquid radioactive waste processing facility (commissioned in 2012) is located on the territory of the State Scientific Institution “The Joint Institute for Power and Nuclear Research – Sosny” of the National Academy of Sciences of Belarus which is 1.2 km from Minsk.

The plant is intended for the processing of liquid radioactive waste resulting from research activity on the site of SSI “JIPNR – Sosny”.

The plant is intended for processing of low- and intermediate-level liquid radioactive waste.

The plant consists of four parts:

- liquid radioactive waste acceptance unit;
- liquid radioactive waste cleaning and concentration unit;
- cementing unit;
- temporary storage unit.

An inventory of radioactive waste is given in Table D.2.1 .

Table D.2.1. Inventory of radioactive waste in SSI “JIPNR – Sosny” (as of 01.01.2014).

RAW	Quantity, liters	Basic radionuclides	Specific activity, Bq/l	Total activity, Bq
Liquid radioactive waste	1304 l	Pu-239	9.0±2.0	7.85•10 ⁴
		Pu-240	5.0±1.5	
		Am-241	38.8±3.9	
Ion-exchange resins	690 l	Co-60 Eu-152 Sr-90	up to 1.2 • 10 ⁸ up to 1.4 • 10 ² up to 7.3 • 10 ⁵	1.94•10 ⁸

D.2.3 Decontamination waste disposal facilities

Disposal of solid decontamination waste resulting from elimination of consequences of the Chernobyl NPP catastrophe shall be performed in decontamination waste disposal facilities (hereinafter – DWDF). In terms of engineering arrangement, DWDF are divided into three categories with regard to specific activity level or surface contamination of decontamination waste.

DWDF of category I (hereinafter – DWDF-I) – a special engineering structure (tank) aimed for disposal of decontamination waste with specific activity of Cs-137 from 100 kBq/kg and higher, which provides for its secure isolation by using special engineering protective barriers and hydrotechnical arrangement, equipped with a system of permanent monitoring of its status and impacts to the environment. At the present time there is one DWDF of this type in the Republic of Belarus – “Khatki”. It is located in the south of exclusion zone within Polesie State Radioecological Reserve in several kilometers from the Ukrainian border and constitutes 9 trenches complete with concrete cells (3×3×3m). By now, 300 cells, in which (according to the reporting data) in 1991 3088 tons of radioactive meat were disposed. The total activity of waste at the moment of disposal was 74.5×10¹⁰ Bq (20.14 Cu).

DWDF of category II (hereinafter – DWDF-II) – an engineering structure for near-surface disposal of decontamination waste with specific activity of Cs-137 from 1.0 kBq/kg to 100 kBq/kg, which prevents the radionuclides travel to the environment by using elementary clay protection barriers. DWDF-II equipment provides for monitoring of its status and impacts to the environment. There are 9 storage facilities of this type: in Mogilev Region – 4, in Gomel Region – 4, in Brest Region – 1. The summary of Chernobyl originated decontamination waste at DWDF-II is given in Appendix 2.

DWDF of category III (hereinafter – DWDF-III) – near-surface decontamination waste storage facilities organized during initial post-catastrophe period, generally, with no design and no hydrogeological restrictions taken into account, which require additional works on engineering arrangement and monitoring of its status and impacts to the environment. Nearly all of them were created in extreme conditions and arranged, as a rule, in the former pits, ravines, depressions, sometimes in specially dug trenches or even sites. Only three of them have the foundation protection in the form of a layer of clay or polymer film, 11 – holes for ground waters contamination control.

Collection, transportation and disposal of waste resulting from the territory cleaning, as well as arrangement, maintenance and radiation control of DWDF shall be performed by specialized enterprises “Polesie”, “Radon” and “Brestoblselstroy” in Brest Region.

As of 01.01.2014 there are 88 DWDFs in the Republic of Belarus, including:

in Brest Region - 3 DWDFs (DWDF- II - 1, DWDF- III - 2);

in Gomel Region - 81 DWDFs (DWDF- I - 1, DWDF- II - 4, DWDF- III - 75, temporary storage facility - 1);

in Mogilev Region - 4 DWDFs - III.

For the purposes of optimization of storage system and costs of monitoring, servicing and maintenance within the State Program for Elimination of Consequences of the Chernobyl NPP Catastrophe for 2011-2015 and for a period up to 2020 in Gomel Region since 2012 works have been performed on decontamination waste compacting by means of their displacement to other DWDF with subsequent liquidation of certain DWDFs - III.

In 2012 DWDF-III “Usov”, Lyelchytsy District, was liquidated. Waste was disposed to DWDF “Nekrashevka-2”, Yelsk District.

In 2013 DWDF-III “Morozovka-2”, Dobrush District, was liquidated with decontamination waste disposed to DWDF “Morozovka-1”, Dobrush District.

The territories which became free due to the works have radioactive-contamination levels not exceeding those of adjacent territories.

D.2.4 Radioactive waste storage facilities at former locations of the USSR military forces

So far, the only radioactive waste storage facility in the Republic of Belarus located at former locations of the USSR military forces is “Gomel-30” facility.

RWSF “Gomel-30” is located near Rechitsa, Gomel Region, on the territory of an object under jurisdiction of the Ministry of Internal Affairs of the Republic of Belarus. “Gomel-30” was built in 1964 at a station of military forces for the purpose of placement of spent radionuclide sources.

RWSF “Gomel-30” is a well-type object. The outer diameter of the structure is 1800 mm, height – 2500 mm. Building structures of walls, foundation plate and covering are made of prefabricated reinforced concrete elements 150 mm thick. The foundation plate and walls have metal cladding with 4 mm thickness made of steel. There is 2-layer bitumen insulation inside the structure along the metal surface and outside along the concrete surface. Along the exterior contour perimeter there is a waterproof lock of pugged clay. The RWSF interior, where sources of ionizing radiation are placed, is cemented.

Another facility of this type – RWSF “Kolosovo” – was liquidated in 2008.

The work for detection and examination of the USSR military forces former stations where radioactive waste storage facilities may be located continues to be performed in the Republic of Belarus.

D2.5 Belarusian NPP

The NPP radioactive waste management system is intended for collection, treatment, processing, transportation and storage of RW generated in the course of a nuclear power plant operation.

In the course of NPP operation gaseous, liquid and solid radioactive waste will be generated. This waste generally belongs to very low-level, low- and intermediate-level RW categories. The number of high-level operational RW will be about 1 % of the total waste.

The main objectives to be reached in the course of the nuclear power plant RW management are as follows:

- in case of gaseous waste management – purification prior to emission to the atmosphere until it meets sanitary requirements;

- in case of liquid RW management – removal of radionuclides from liquid RW, minimal concentration of radionuclides and transfer of concentrated liquid RW to the forms suitable for storage;

- in case of solid RW management – minimization of volumes and safe, secure storage during design period.

Gaseous radioactive waste of NPP will be generated as a result of the process tanks purge system and special ventilation system operation.

The process tanks purge system is intended to limit gas and aerosol emissions to the atmosphere from NPP caused by process purges from the tanks containing liquid radioactive substances (from the primary circuit feed deaerator of NPP, from the pressure compensator bubbler, from the primary circuit leakage tank, from the coolant storage tanks).

The system consists of two identical and interchangeable threads – working and reserve ones. Purges from the tanks containing radioactive substances come to the working thread coolant to be cooled and then directed to aerosol filter for drying. The dried gas is heated and directed to the iodine filter for iodine ions removal, and then discharged to the vent stack.

A system for the controlled access zone air collection and purification is intended for purification of gaseous radioactive emissions from ventilation systems of the controlled access zone. At a standard NPP operation the main sources of the NPP air contamination by radioactive substances are the uncontrolled leakages of the primary coolant and other radioactive substances through the leakages of equipment elements.

Other potential sources of radioactive gases and aerosols in the air of controlled access zones are:

- gases and aerosols resulting from weld and repair works;

- water vapors coming to the central hall in the event of reactor opening;

- water vapors from the spent fuel pool during reloading and storage of the spent fuel.

Exhaust air from the controlled access zone premises is released to the atmosphere through the vent stack.

In order to prevent contamination of the energy unit premises air with radioactive substances over the permissible limits and to reduce their content in the atmospheric air during the unit operation, the NPP design provides for the following technical solutions:

arrangement of directional air movement toward more “contaminated” premises, which is achieved by creation a pressure of at least 50 Pa by exhaust systems of ventilation and control valves installation;

assurance of effective cleaning of the controlled access zone exhaust air at filter stations from radioactive iodine and aerosols before being discharged into the atmosphere through the vent stack;

reduction of the amount of exhaust air discharged into the atmosphere through the vent stack by using recirculation refrigerating plants and supply of intake air within the sanitary standards only;

the use of two-stage purification of exhaust air of the containment to reduce radioactive emissions to the environment at power operation, in overload modes and during repair work;

maintenance a pressure of at least 200 Pa in the sealed enclosure of the reactor building and at least 100 Pa in the intershell space of the reactor building;

In order to reduce gas and aerosol vent emission activity, filter stations of exhaust vent systems are used, which provide for effective cleaning of the air from different groups of radioactive aerosols and iodine.

Technical solutions used in the designs of Belarusian NPPs help maintain the NPP gas emissions activity significantly lower than the standards established by sanitary rules.

In the course of NPP operation **liquid radioactive substances** will be generated. These are: radioactive liquids, solutions of organic and inorganic substances subject to further processing to form purified media that are removed from the NPP cycle or reused, as well as liquid radioactive waste (concentrates of salts, spent ion-exchange resins and others) subject to further processing.

The liquid radioactive substances are:

water from equipment, valves, pipelines and premises decontamination;

leakages and drainages of equipment, pipelines, valves within the controlled access zone;

evaporators chemical wash waters;

waters from the sanitary inspection room and active laundry, etc.

All the specified flows are drain waters and will be processed in the drain water system.

Drain waters processing shall be based on evaporation which provides for the required degree of purification of such waters with a minimum amount of generated radioactive salt concentrates.

Purification of liquid radioactive substances shall be performed at the evaporator of 6 t/h productivity. Estimated volume of processed drainage waters at standard operation and scheduled preventive maintenance is 7100 m³/year at maximum specific activity of 0.1 TBq/m³.

In the course of the processing of drainage waters the pure condensate will be generated, which is going to be reused in the NPP cycle, and salt concentrate with salt content of 400 g/l (vat residue).

The technologies used provide for up to 95% of drainage waters to be reused in the NPP cycle.

The following systems are used for interim storage and subsequent processing of liquid radioactive waste:

a system for interim storage of vat residue and spent sorbents which provides for liquid RW holdup within three months for short-lived radionuclides decay;

waste conditioning and solidification system used to obtain solidified product suitable for interim storage and disposal.

Under normal operating conditions of NPP the formation of 10 m³ /year of the spent ion-exchange resin and 25 m³ /year of vat residue is expected.

For the purpose of liquid radioactive waste solidification cementing system is used aimed for RW transfer to the final state which provides for their storage in solid forms with radionuclides safely fixed within. The NPP design prescribes to use a non-return protective container of NZK-150-1.5P type as a package for solidified liquid RW.

NZK-150-1.5P loading with solidified liquid RW shall be performed in the premises of the containers packing and transportation unit and it is a process of solidified RW (vat residue, sludge) mixing with cement and additives.

The plant estimated daily capacity – at least 3 containers.

After dehydration spent sorbents of low and intermediate activity levels will be packed to the preinstalled box without mixing with cement.

In the course of nuclear power plant operation **solid radioactive waste (SRW)** will also be generated. Solid radioactive waste will be generated at the NPP during energy units operation in the process of standard operation in the process systems in the course of recycling and purification of liquid and gaseous waste (solidified waste, filters, sorbents, ion-exchange resins, etc.), as well as during repair works (dismantled equipment, sensors of the parameters control and measurement system, tools, overalls, construction, heat-insulating, wiping materials, etc.).

High-level operational SRW that are planned to form in the reactor building shall be as follows: neutron measurement temperature chambers, ionization chambers and witness samples cutting waste.

SRW management system includes collection, sorting, processing, packaging and temporary storage of solid radioactive waste in storage facilities on the NPP territory.

SRW processing equipment system performs acceptance, sorting, size reduction and loading of SRW into metal drums of 200 l capacity, SRW compaction right in the drums, sealing and certification of drums followed by their transfer for storage.

Expected annual total operational radioactive waste per one NPP power unit – 83.5 m³, including high-level one.

Expected annual number of NZK-150-1.5P type containers per unit - 22, and the annual number of solidified liquid radioactive waste per one NPP power unit - 33 m³.

Percentage of the number of waste will be as follows:

- | | |
|----------------------|----------|
| - very low-level | - 17.6% |
| - low-level | - 70.4%; |
| - intermediate-level | - 11%; |
| - high-level | - 1 %. |

In case of NPP decommissioning, expected volume of intermediate- and low-level RW will be 2050 m³, and high-level one - 85 m³.

Section E. LEGISLATIVE AND REGULATORY FRAMEWORK

E.1. Implementing Measures

Article 18. Implementing measures

Each Contracting Party shall take, within the framework of its national law, the legislative, regulatory and administrative measures and other steps necessary for implementing its obligations under this Convention.

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

The Republic of Belarus continues improvement of legislative and regulatory infrastructure in the field of nuclear and radiation safety.

The Ministry of Energy of the Republic of Belarus was appointed as a responsible government body for radioactive waste management by order of the First Deputy Prime Minister of the Republic of Belarus in 2013. Currently, work is being carried out to fix the corresponding functions of the Ministry in legislative acts of the Republic of Belarus.

Strategy for Radioactive Waste Management in the Republic of Belarus is being developed by the Ministry of Energy of the Republic of Belarus in cooperation with the National Academy of Sciences of Belarus and other involved government bodies.

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.

The key legislative act establishing radioactive waste safety requirements is the Law of the Republic of Belarus “On Radiation Safety of Population”.

The Law of the Republic of Belarus “On the Use of Atomic Energy” establishes requirements to the management of spent nuclear materials, operational radioactive waste, as well as storage facilities.

The Law of the Republic of Belarus “On Sanitary and Epidemiological Well-Being of Population” establishes legal and organizational frameworks to prevent adverse impact of the environment factors to human organism for the purpose of

sanitary and epidemiological well-being of population assurance. Article 31 of this Law specifies obligations of organizations dealing with sources of ionizing radiation, including RW.

Management of Chernobyl originated radioactive waste is governed by:

the Law of the Republic of Belarus “On Legal Status of Territories Contaminated by Radiation as a result of Chernobyl NPP Catastrophe”;

the Technical Code of Practice (hereinafter – TCP) 113-2007 (02300) “Procedure for Examination of Territories, Facilities and Equipment for Decontamination Works”;

TCP 144-2008 (02300) “Arrangement and Performance of the Territories, Facilities and Equipment Decontamination”;

TCP 504-2013 (02300) “Arrangement and Performance of Facilities Liquidation on the Territories Contaminated by Radiation as a result of Chernobyl NPP Catastrophe”;

Sanitary Regulations and Standard 2.6.6.8-8-2004 “Management of Decontamination Waste Resulting from Works on Elimination of Consequences of Chernobyl NPP Catastrophe (SPOOD-2004)”.

Licensing relations in the field of use of nuclear energy and sources of ionizing radiation application, including radioactive waste and spent nuclear materials management, are governed by the Decree of the President of the Republic of Belarus of September 1, 2010 No. 450 (as amended of 16.01.2014) “On Licensing of Certain Types of Activity”.

Procedure for arrangement and execution of inspections is determined by the Decree of the President of the Republic of Belarus of 16.10.2009 No. 510 (as amended of 07.10.2013) “On Improvement of Control (Supervisory) Activity in the Republic of Belarus”. The document states that the Department for Nuclear and Radiation Safety of MES of the Republic of Belarus (Gosatomnadzor) shall perform state supervision of nuclear and radiation safety assurance.

Resolution of the Council of Ministers of the Republic of Belarus of December 31, 2008 No. 2056 (as amended of 07.04.2014) approved Regulations on the procedure of state supervision of industrial safety, dangerous goods transportation safety, as well as nuclear and radiation safety.

Resolution of the Council of Ministers of the Republic of Belarus of April 30, 2009 No. 562 approved the Regulations on the procedure for state registration of ionizing radiation sources and implementation of the united state system for accounting and control of ionizing radiation sources. The Regulation establishes procedure as well as periodicity of data submission for state registration of radioactive waste in the united state system for accounting and control of sources of ionizing radiation.

Requirements to spent fuel safety assurance are specified in the Rules for safety of storage and transportation of nuclear fuel at the complexes of spent nuclear fuel storage and management systems and the Rules for safety of storage and transportation of nuclear fuel at the nuclear energy facilities approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 30, 2006 No. 72.

Objectives and principles of radioactive waste management safety assurance as well as general requirements to radioactive waste management safety assurance are established by Norms and Rules for Nuclear and Radiation Safety Assurance “Safety of Radioactive Waste Management. General Provisions”. The document is approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of September 28, 2010 No. 47.

Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 13, 2010 No. 64 approved Norms and Rules for Nuclear and Radiation Safety Assurance “Requirements to Structure and Content of Radioactive Waste Management Facilities Safety Reports”. The regulation establishes the required list of data sufficient for justification of the level of radiation safety of population, personnel and environment during operation of radioactive waste management facility and upon its closure.

Norms and Rules for Nuclear and Radiation Safety Assurance “Disposal of Radioactive Waste. Principles, Criteria and General Safety Requirements” establish basic safety requirements to near-surface disposal of radioactive waste, as well as to disposal in geological formations. The document is approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of January 20, 2012 No. 7.

Rules for Safety Assurance of Dangerous Goods Transportation by Road in the Republic of Belarus determine general requirements and basic terms of assurance of safe road transportation of dangerous goods and regulate relationship, rights and obligations of dangerous goods transportation participants. The Rules are approved by the Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 8, 2010 No. 61.

In addition, radioactive materials transportation is governed by the Sanitary Norms and Rules (SanPiN) 2.6.1.13-60-2005 “Hygienic Requirements for Assurance of Radiation Safety of Personnel and Population during Radioactive Materials (Substances) Transportation”. Requirements of this document encompass shipment, transportation, transit storage, offloading and acquisition of radioactive materials, including radioactive waste, regardless of transportation type and on the whole territory of the Republic of Belarus.

Sanitary-Hygienic Standard 2.6.1.8-127-2000 “Radiation Safety Standards (NRB-2000)” approved by the Resolution of the Chief State Medical Officer of the Republic of Belarus of January 25, 2000 No. 5 was repealed in 2012. This sanitary-hygienic standard was replaced by Norms and Rules “Radiation Safety Requirements” and Hygienic Standard “Radiation Impact Assessment Criteria” approved by the Resolution of the Ministry of Health of the Republic of Belarus of 28.12.2012 No. 213.

In accordance with Sanitary Norms and Rules “Radiation Safety Requirements”, management of radioactive waste resulting from practices shall be qualified as planned exposure situation.

Sanitary Norms and Rules 2.6.1.8-8-2002 “Basic Sanitary Rules for Radiation Safety Assurance (OSP-2002)” approved by the Resolution of the Chief State Medical Officer of the Republic of Belarus of February 22, 2002 No. 6 was repealed in 2013. These sanitary regulations and standards were replaced by Sanitary Norms

and Rules “Requirements to Assurance of Radiation Safety of Personnel and Population in the Use of Nuclear Energy Facilities and Sources of Ionizing Radiation” approved by the Resolution of the Ministry of Health of the Republic of Belarus of 31.12.2013 No.137.

Sanitary Rules for Radioactive Waste Management (SPORO-2005) 2.6.6.11-7-2005 approved by the Resolution of the Chief State Medical Officer of the Republic of Belarus of May 7, 2005 No.45 establish requirements to personnel and population radiation safety assurance in all types of RW management. SPORO-2005 includes radioactive waste classification, main principles of RW management, radiation safety criteria of RW management, basic requirements which provide for personnel and population safety at all RW management stages (collection, storage, transportation, processing and disposal). Because of NRB-2000 and OSP-2002 repeal and new technical normative legal acts approval, SPORO-2005 is being revised.

Rules for management of radioactive waste and spent nuclear fuel resulting from nuclear power plants operation are regulated by Sanitary and Hygienic Norms and Rules “Hygienic Requirements to Design and Operation of Nuclear Power Plants” approved by the Resolution of the Ministry of Health of the Republic of Belarus of 31.03.2010 No. 39.

The following TCPs were prepared and approved in 2011 – 2014.

TCP No. 389-2012 “Rules for Physical Protection of Ionizing Radiation Sources” establishes requirements to security and physical protection of ionizing radiation sources.

TCP No. 426-2012 “Rules for Physical Protection of Nuclear Facilities and Nuclear Materials during Use and Storage” establishes requirements to arrangement and execution of physical protection of nuclear facilities and materials during their storage and use.

TCP No. 501-2013 “Rules and Procedure for Preparation of Safety Assessment Report of Nuclear Materials Storage Facilities” includes requirements to composition and content of the report on safety of nuclear materials storage facilities, completeness of information to be submitted for activity justification, structure of description of nuclear materials storage systems, as well as report preparation procedure and its execution.

TCP No. 503-2013 “Rules for Siting of Nuclear Materials and Nuclear Substances Storage Facilities” establishes basic criteria and requirements to safety assurance when siting and assessing nuclear materials and nuclear substances storage facilities, including fresh and spent fuel storage facilities classified as facilities of nuclear energy use.

TCP No. 533-2014 “Procedure for Reporting Materials on Accounting and Control of Nuclear Materials Submission to an Authorized Governmental Body” establishes requirements to the content and form of reporting documentation to be submitted within accounting and control of nuclear materials to an authorized government body.

In addition to the specified TCPs, Regulation on the procedure for the State system of accounting and control of nuclear materials of the Republic of Belarus approved by the Resolution of the Council of Ministers of the Republic of Belarus of 17.03.2014 No. 224 entered into force in 2014. This Regulation determines procedure

for the state system of accounting and control of nuclear materials of the Republic of Belarus.

The System of Accounting and Control of Nuclear Materials of the Republic of Belarus covers nuclear materials produced, used and stored on the territory of the Republic of Belarus, as well as activities in the area of nuclear energy use.

Specified documents constitute a regulatory framework for assurance of protection and safety of population and personnel from radiation impact, contain requirements of basic safety standards in terms of personnel and population exposure, and establish a system of licensing of spent fuel and radioactive waste management.

A list of legislative acts in the field of nuclear and radiation safety governing spent fuel and radioactive waste management is given in Appendix 3.

E.2.1. Licensing of Spent Fuel and Radioactive Waste Management

In accordance with the Decree of the President of the Republic of Belarus of September 1, 2010 No. 450 “On Licensing of Certain Types of Activities” the use of nuclear energy and sources of ionizing radiation is subject to licensing. The licensing body is the Ministry for Emergency Situations.

Licensed activities in terms of radioactive waste and spent fuel management includes the following works and services:

1. For nuclear energy use:

design, siting, construction, operation, decommissioning (or a selection of the specified work list) of nuclear materials storage facilities;

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

2. For radioactive waste management:

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

design, siting, operation, decommissioning (or a selection of the specified work list) of radioactive waste storage facilities.

Activity on safety review in the field of nuclear energy and ionizing radiation sources application is also subject to licensing.

A license is issued for 5 years and may be renewed repeatedly.

Prior to decision to issue a license the licensing body shall perform assessment or assign an examination of the license applicant’s (licensee’s) ability to meet license requirements and terms. Examination shall be assigned if special knowledge of science, engineering and other fields is required.

Procedure for review of documents which justify nuclear and radioactive safety assurance in the use of nuclear power and ionizing radiation sources is determined by the Government of the Republic of Belarus.

Assessment or examination period shall not exceed: for nuclear energy use – one year, for radioactive waste management – 30 days.

License is issued in case of positive assessment of safety assurance only.

E.3. State Administration and Regulation of Nuclear and Radioactive 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 adequate authority, competence and financial and human resources to fulfill its assigned responsibilities.

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

According to Article 6 of the Law of the Republic of Belarus “On Radiation Safety of Population”, state governance in the area of radiation safety assurance is performed by the President of the Republic 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, the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus, local executive and regulatory authorities, other state bodies and organizations within their competence determined by the legislation (see Appendix 5).

According to Article 6 of the Law “On the Use of Atomic Energy”, state governance of the use of nuclear power is performed 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 authorities and other state organizations authorized by the President of the Republic of Belarus.

President of the Republic of Belarus, in the area of nuclear and radiation safety assurance, shall:

determine the single state policy;

exercise other powers under the Constitution of the Republic of Belarus, this Law and other legislative acts.

Council of Ministers of the Republic of Belarus, in the area of nuclear and radiation safety assurance and within its competence, shall:

ensure implementation of the single state policy;

arrange for development, approve and ensure implementation of republican programs for nuclear and radiation safety assurance;

determine, as agreed with the President of the Republic of Belarus, a list of ionizing radiation sources restricted for movement across the State Border of the Republic of Belarus when imported and (or) exported for non-economic reasons;

determine, as agreed with the President of the Republic of Belarus, procedure and terms of licensing of import and (or) export of ionizing radiation sources restricted for movement across the State Border of the Republic of Belarus for non-economic reasons;

establish procedure for coordination among republican authorities, other state bodies and organizations in case of ionizing radiation sources detection, as well as their arrest at the State Border of the Republic of Belarus;

establish procedure for arrangement and performance of state supervision in the area of nuclear and radiation safety assurance, except for the procedure for arrangement and performance of inspections and monitoring of compliance with the normative legal acts in the area of radiation safety assurance, including technical

normative legal acts, in the course of ionizing radiation sources management (hereinafter – inspections and monitoring);

establish procedure for creation and management of the unified state system of accounting and control of individual radiation doses;

approve Statute of the National Commission of Belarus for Radiation Protection under the Council of Ministers of the Republic of Belarus and composition of the Commission;

make decisions on siting of radioactive waste management facilities;

coordinate and organize fulfillment of obligations of the Republic of Belarus under the international agreements of the Republic of Belarus on radiation safety assurance;

establish procedure of radiation monitoring;

approve a form of radiation and hygienic passport of ionizing radiation sources user, keeping procedure and applications of the passport;

exercise other powers under the Constitution of the Republic of Belarus, this Law, other laws and acts of the President of the Republic of Belarus.

Ministry for Emergency Situations of the Republic of Belarus, in the area of nuclear and radiation safety assurance and within its competence, shall:

take measures for the single state policy implementation;

perform coordination of republican authorities, other state bodies and organization;

provide for state supervision;

adopt normative legal acts in the area of nuclear and radiation safety assurance, including approval (implementation) of technical normative legal acts;

issue and withdraw permits for import and (or) export of ionizing radiation sources restricted for movement across the State Border of the Republic of Belarus for non-economic reasons, as well as suspend them;

make decisions on full or partial suspension of management of ionizing radiation sources and operation of radioactive waste management facilities until elimination of violations of normative legal acts in the area of nuclear and radiation safety assurance, including technical normative legal acts;

establish procedure for development, agreement and approval of radioactive waste management scheme;

establish a form of accompanying certificate for radioactive waste transportation, as well as its execution procedure;

exercise other powers under this Law and other legislative acts.

Ministry of Health of the Republic of Belarus, in the area of nuclear and radiation safety assurance and within its competence, shall:

take measures for the single state policy implementation;

perform state sanitary and epidemiological standardization, including sanitary norms and rules, and sanitary-hygienic standards approval;

arrange and perform state sanitary supervision of compliance with legislation in the area of sanitary and epidemiological well-being of population;

create the unified state system for accounting and control of individual radiation doses of population and ensure its operation;

exercise other powers under this Law and other legislative acts.

Ministry of Natural Resources and Environmental Protection of the Republic of Belarus, in the area of nuclear and radiation safety assurance and within its competence, shall:

- take measures for the single state policy implementation;
- perform environmental protection control;
- arrange for radiation monitoring;
- develop normative legal acts for the environment monitoring;
- perform emergency radiation monitoring of the environment and its arrangements;
- perform forecasting of radioactive contamination in the event of emergency situations;
- exercise other powers under this Law and other legislative acts.

Ministry of Internal Affairs shall establish procedure for design basis threat determination for the purpose of setting requirements to physical protection for each nuclear energy use facility (Clause 5 of Regulation on Physical Protection of Nuclear Energy Use Facilities).

State Security Committee shall coordinate obtaining access to the nuclear facility, storage facility, nuclear material and radioactive waste (Clause 8 of Regulation on Physical Protection of Nuclear Energy Use Facilities).

State Committee for Standardization (Gosstandard) is a regulatory body for implementation of the single state policy in technical regulation and standardization, metrology, energy efficiency; for state supervision of construction, control and assessment of the projects compliance with norms and standards, as well as in control of fuel, rational use of electric and heat energy. State Committee for Standardization shall perform accreditation of laboratories and posts of radiation control, assessment of radiological measurement methods, inspection and metrological certification of measuring means.

State Construction Supervision (Gosstroyadzor) Department is a Gosstandard subdivision. Gosstroyadzor performs state construction supervision and is an integral part of the system for state regulation of construction on the territory of the Republic of Belarus.

The main task of state construction supervision is an inspection of compliance of construction investment participants with the legislation of the Republic of Belarus, normative, technical and approved construction project documents for construction projects reliability and safety assurance.

Local executive and regulatory authorities, in the area of nuclear and radiation safety assurance and within its competence, shall:

- arrange for radiation safety assurance at subordinate territories;
- perform assessment of radiation safety status;
- organize development and ensure implementation of regional (territorial) radiation safety assurance programs;
- exercise other powers under this Law and other legislative acts.

National Commission of Belarus for Radiation Protection under the Council of Ministers of the Republic of Belarus is an intersectoral scientific expert and advisory body for radiation safety, radiation protection and radiation control assurance.

National Academy of Sciences of Belarus performs scientific support of activities on improvement of technologies and justification of RW management safety, as well as participates in the respective normative framework creation.

Other state bodies and organizations, in the area of nuclear and radiation safety assurance and within their competence, shall:

- take measures for the single state policy implementation;
- perform assessment of radiation safety status;
- exercise other powers under this Law and other legislative acts.

State supervision of radioactive safety assurance is performed by the Department for Nuclear and Radiation Safety of the Ministry for Emergency Situations of the Republic of Belarus. Procedure for arrangement and execution of state supervision of radioactive safety assurance, except for the procedure for arrangement and execution of inspections and monitoring, is established by the Council of Ministers of the Republic of Belarus. Procedure for arrangement and execution of inspections and monitoring is established by legislation on control (supervisory) activity.

State sanitary supervision of compliance with the legislation on sanitary and epidemiological well-being of population in the area of radiation safety includes supervision of compliance with sanitary standards and regulations, sanitary-hygienic standards in the event of radon and natural radionuclides gamma radiation exposure, food production and drinking water consumption, medical exposure, ionizing radiation exposure in case of works with ionizing radiation sources, radioactive waste management.

State sanitary supervision of compliance with the legislation on sanitary and epidemiological well-being of population in the area of radiation safety is performed by bodies and institutions authorized for state sanitary supervision according to procedure established by legislation on control (supervisory) activity and legislation covering sanitary and epidemiological well-being of population.

E.3.1 Regulatory body

Ministry for Emergency Situations of the Republic of Belarus is defined as a regulatory body for the prevention and liquidation of natural and man-made emergency situations and civil defense, fire, industrial, nuclear and radiation safety assurance.

Ministry for Emergency Situations of the Republic of Belarus, within its competence in accordance with a regulation approved by Decree of the President of the Republic of Belarus, shall:

- provide state supervision and control in the field of population and territories protection from natural and man-made emergency situations, state supervision and control in nuclear and radiation safety, state supervision in dangerous goods transportation safety, state fire supervision, state supervision of protection and use of territories exposed to radioactive contamination, state supervision in industrial safety;
- participate in organization and execution of conformity assessment of equipment, products and technologies for nuclear energy use facilities;

provide the operation of the unified state system for control and accounting of ionizing radiation sources and state system for control and accounting of nuclear materials of the Republic of Belarus;

arrange examination of safety of nuclear and (or) storage facility, as well as their projects, including with the involvement of independent experts;

ensure maintenance of instant readiness of the forces and means of the emergency bodies and subdivisions to natural and man-made emergency situations;

adopt normative legal acts in the field of fire, industrial, nuclear and radiation safety assurance;

exercise other powers.

The structure of the Ministry for Emergency Situations is presented in Appendix 6.

Department for Mitigation of Consequences of the Chernobyl NPP Catastrophe shall take measures to improve sanitary state of territories of the primary and subsequent resettlement zones with the population resettled, and settlements that were classified as evacuation (alienation), primary and subsequent resettlement zones, as well as other settlements to be resettled, ensure maintenance of the system of disposal facilities of radioactive waste resulting from elimination of consequences of the Chernobyl NPP catastrophe and its safe operation.

For the purpose of state supervision in nuclear and radiation safety, the Ministry for Emergency Situations established **Department for Nuclear and Radiation Safety (Gosatomnadzor)**. In accordance with the Decree of the President of the Republic of Belarus, the main tasks of Gosatomnadzor are:

- state supervision of nuclear and radiation safety assurance;
- control of compliance with legislation on nuclear and radiation safety assurance.

Gosatomnadzor, within its tasks, shall:

- analyze practices of application of legislation in nuclear energy use, nuclear and radiation safety, and develop proposals on its improvement;
- participate in issuing special permits (licenses) for the activities related to sources of ionizing radiation, radioactive waste, nuclear materials, radiation protection means and process equipment for nuclear materials and sources of ionizing radiation by MES to companies and individual entrepreneurs according to established procedure;
- establish requirements to the content of documents which confirm assurance of nuclear and radiation safety of a nuclear facility, source of radiation, nuclear materials, sources of ionizing radiation storage facility (hereinafter – storage facility) and activity related to sources of ionizing radiation, nuclear materials, radiation protection means and process equipment for nuclear materials and sources of ionizing radiation;
- arrange safety review of nuclear plants, nuclear energy industry objects, radiation sources and storage facilities, including with the involvement of independent experts, as well as review of their design and engineering design documentation;
- within its competence it shall organize and perform state supervision of:

- ✓ compliance with license terms and requirements in the use of nuclear energy and sources of ionizing radiation by licensees;
- ✓ radioactive waste and nuclear materials management, their recovery and disposal;
- ✓ assurance of physical protection of nuclear materials and facilities, radiation sources, storage facilities;
- ✓ planning of protective arrangements for assurance of safety of personnel and population in the event of nuclear and radiation accidents;
- ✓ compliance with the normative legal acts and technical normative legal acts on the nuclear and radiation safety assurance in the course of designing (engineering), manufacturing, storage, mounting, operation and decommissioning of equipment and systems of nuclear plants, nuclear energy industry objects, radiation sources and storage facilities;
 - organize scientific research to justify nuclear and radiation safety principles and criteria;
 - ensure operation of the state system for accounting and control of nuclear materials, the unified state system for accounting and control of ionizing radiation sources, storage facilities;
 - determine requirements to the procedure of submission to Gosatomnadzor and content of information on failures of radiation facilities, nuclear facilities, nuclear energy industry objects;
 - determine the procedure for investigation of circumstances and causes of failures in the operation of radiation facilities, nuclear facilities, nuclear energy industry objects, and conduct such investigation;
 - organize development of requirements and terms which exclude the possibility of terrorist acts at radiation facilities, nuclear facilities, nuclear energy industry objects and storage facilities;
 - participate in organization and execution of certification of equipment, products and technologies for radiation facilities, nuclear facilities, nuclear energy industry objects and storage facilities;
 - organize professional training, retraining, skill improvement and tutoring of Gosatomnadzor specialists;
 - participate in the activity of:
 - ✓ commissions for preliminary, periodic and acceptance testing of equipment and technical devices used at radiation facilities, nuclear facilities, nuclear energy industry objects;
 - ✓ special commissions for selection of places for radioactive waste disposal;
 - control:
 - ✓ compliance with nuclear energy application standards and rules;
 - ✓ fulfillment of international obligations of the Republic of Belarus in the area of nuclear and radioactive safety assurance when using nuclear energy and sources of ionizing radiation;
 - ✓ organization and conduct of professional training, retraining and skill improvement, training of radiation and nuclear facilities personnel on issues related

to safety work at radiation facilities, nuclear facilities, nuclear energy industry objects;

- ✓ implementation of measures for improvement of emergency resistance and safety functioning of radiation facilities, nuclear facilities, nuclear energy industry objects;

- inform, in accordance with legislation, the public on safety status of radiation facilities, nuclear facilities, nuclear energy industry objects.

At the time of creation of Gosatomnadzor its staff number (31 items) and the number of local agencies (8 items) was determined as a minimum to perform tasks of the preliminary stage of the nuclear power plant construction.

The Belarusian NPP construction stage entrust the regulatory body with additional tasks of supervision and regulation.

Due to start of the active phase of the Belarusian NPP construction project in 2012 and based on the results of analysis of structure, number and functions performed by regulatory bodies of countries operating 1-2 NPPs, since July 1, 2013 the staff number of executive office of Gosatomnadzor increased up to 82 items with a regional subdivision created directly at the NPP construction site.

The structure of Gosatomnadzor is presented in Appendix 7.

Technical support arrangement

The Resolution of the Council of Ministers of the Republic of Belarus of January 11, 2012 No 33 defined the State Scientific Institution “The Joint Institute for Power and Nuclear Research – Sosny” of the National Academy of Sciences of Belarus as an organization providing scientific and technical support to the Ministry for Emergency Situations.

In accordance with the provisions of this Resolution, the Joint Institute for Power and Nuclear Research – Sosny is authorized for:

- arrangement and execution of scientific and technical support in the area of nuclear and radiation safety regulation, including analysis and justification of criteria and requirements of such safety;

- scientific and research works on improvement of effectiveness of state regulation in the area of nuclear and radiation safety of nuclear energy use facilities;

- assessment of safety of the use of nuclear energy and ionizing radiation sources.

Status of the regulatory body

Ministry for Emergency Situations of the Republic of Belarus is subordinated to the Council of Ministers of the Republic of Belarus.

When using nuclear energy and sources of ionizing radiation, state bodies for safety regulation, in terms of exercise of their powers related to state regulation of safety, control and state supervision of the use of nuclear energy and ionizing radiation sources, are independent of the republican authorities and other state organizations which perform state governance of the use of nuclear energy and ionizing radiation sources (Article 6-2 of the Law of the Republic of Belarus “On Radiation Safety of Population”, Article 7 of the Law “On the Use of Atomic Energy”).

Within its powers, Ministry for Emergency Situations of the Republic of Belarus is a regulatory body in the area of nuclear and radiation safety assurance.

Ministry for Emergency Situations of the Republic of Belarus is in direct contact with the state (government) bodies of a higher level whenever such contact is necessary for efficient performance of the regulatory body functions.

The regulatory body's personnel have no direct or indirect interest in a contact with the facilities and activity or parties having an official permit, except one that is necessary for regulatory goals achievement.

Ministry for Emergency Situations of the Republic of Belarus has all the attributes of an independent regulatory body.

Financial and material support of the structures, subdivisions and organizations of the Ministry for Emergency Situations of the Republic of Belarus system is envisaged from the republican budget and local budgets resources, as well as other legal sources.

For the purpose of its tasks and functions implementation, the Ministry for Emergency Situations of the Republic of Belarus is entitled to:

inspect compliance of the republican authorities, local executive and regulatory authorities, other organizations, as well as citizens, with legislation on prevention and liquidation of natural and man-made emergency situations and civil defense, fire, industrial, nuclear and radiation safety assurance, liquidation of consequences of the Chernobyl NPP catastrophe, creation and safety assurance of mobilization material reserve, listen to the representatives of organizations on issues within the MES competence, make obligatory regulations for elimination of failures detected;

request and obtain, according to established procedure, from the republican authorities, local executive and regulatory authorities, other organizations information required to perform the tasks MES is entrusted with.

Direct management of activity of the Ministry for Emergency Situations of the Republic of Belarus is performed by the Minister for Emergency Situations (hereinafter – the Minister), who is personally responsible for the performance of the tasks MES is entrusted with.

The Minister reports directly to the President of the Republic of Belarus, while on issues defined by the Constitution of the Republic of Belarus, the laws of the Republic of Belarus and acts of the President of the Republic of Belarus as a competence of Council of Ministers of the Republic of Belarus – to the Prime Minister of the Republic of Belarus.

Section F. OTHER GENERAL SAFETY PROVISIONS

F.1. Responsibility of the License Holder

Article 21. Responsibility of the license holder

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

2. If there is no such license holder or other responsibility party, the responsibility rests with the Contracting Party which has jurisdiction over the spent fuel and over the radioactive waste.

Article 32 of the Law of the Republic of Belarus “On the Use of Atomic Energy” determined obligations and responsibility of the operating organization for assurance of safety of the nuclear facilities.

The operating organization shall develop and take steps to maintain and improve safety of the nuclear facilities, establish, if necessary, the corresponding services which perform safety control, submit information of safety status of these facilities to the state bodies for safety regulation in the use of nuclear energy within the established time limits.

The operating organization shall ensure:

that nuclear facilities are used for their direct purposes only;

organization and performance of works of such scope and quality as to meet the requirements of technical normative legal acts at all the stages of placement, design, construction, commissioning, operation, operational characteristics limitation, life extension, decommissioning of the nuclear energy use facilities;

development and implementation of measures to prevent a radiation accident in the course of the use of nuclear energy and reduce its adverse impacts to the workers (personnel), citizens and environment;

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

formation and targeted use of the nuclear energy use facilities decommissioning fund and the fund of financing of maintenance and improvement of the nuclear energy use facilities safety;

exercise of rights of the workers (personnel) for social protection;

accounting of individual exposure doses of the workers (personnel);

development and implementation of measures to protect the workers (personnel) and citizens in the observation area in the event of a radiation accident when using nuclear energy;

accounting and control of nuclear materials, spent nuclear materials, operational radioactive waste and other sources of ionizing radiation;

physical protection of the nuclear facilities;

development and implementation of the storage facility fire safety measures;

radiation control and radiation monitoring in the buffer and observation areas;

recruitment, training, retraining and skill improvement of the workers (personnel), as well as maintenance of their required numbers;

informing of citizens in the observation area on the radiological situation;

performance of other obligations determined by legislation.

In accordance with legislation, the operating organization is responsible for non-compliance with the nuclear facilities safety requirements.

In case a decision is taken according to established procedure to suspend, terminate or withdraw a special permit (license) for nuclear facilities operation, the republican authority or other state organization in charge of the specified facilities shall take measures for their safety assurance. In case renewal of such special permit (license) is impossible, the respective republican authority or other state organization in charge of the specified facilities shall take measures to create another operating organization.

Article 38 of the Law of the Republic of Belarus “On the Use of Atomic Energy” established responsibility for violation of the nuclear energy use legislation.

The officials of state bodies, including the republican authority for the nuclear energy use, state bodies for safety regulation in the use of nuclear energy, local government and self-government authorities, as well as the workers (personnel) of the operating organizations, organizations performing works and (or) providing services in the course of nuclear energy use, as well as other persons, shall bear disciplinary, administrative, criminal and (or) other responsibility for violation of the nuclear energy use legislation.

In accordance with licensing legislation, the licensing body or other state bodies, other state organizations, within their competence, shall control the compliance of the licensees with the licensing legislation, license requirements and terms. Control of compliance with the legislation is ensured in the framework of the established system of state supervision of safe performance of works in the area of nuclear and radiation safety and system of state sanitary supervision. The state system of supervision involves regular inspections to check compliance with the requirements of regulatory documents and license terms.

Gosatomnadzor, within its tasks and competence, shall organize and perform state supervision of compliance with the license requirements and terms in the use of nuclear energy and sources of ionizing radiation by licensees.

In case of violations by the licensee of the licensing legislation or license requirements and terms detected by the licensing or other state body authorized for the control (supervision) of the licensed activity, the licensee shall be given a request (order) and a time period to eliminate such violations.

In case the licensee fails to eliminate within the stated period all the violations specified in the request (order), or submit to the licensing or other control (supervision) body a written notice on elimination of such violations, the licensing body shall make a decision to suspend the license for up to six months.

In case the licensee fails to eliminate within the stated period the violations resulting in the license suspension, or submit to the licensing or other control (supervision) body a written notice on elimination of such violations, the licensing body shall make a decision to terminate the license.

In case the licensee continues to perform the licensed activity during suspension period, the licensing body shall also make a decision to terminate the license.

In case of repeated or serious violation of the licensing legislation, license requirements and terms or other violations which cause the license termination, the licensing body shall make a decision to terminate the license.

Persons responsible for or guilty of violation of safety regulations, license requirements and terms can be brought to administrative (a fine or deprivation of the right to engage in a determined activity) or criminal responsibility (arrest, limitation or deprivation of freedom) (see Appendix 4).

Under the court decision the license may be terminated:

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

if the licensee hinders the activity of the licensing or other control (supervisory) body on the control of compliance of the licensee with the licensing legislation, license requirements and terms, including failure of the licensee to comply with legal instructions or requirements of the officials of such bodies in the exercise of their powers, or submits to the officials unreliable documents or other information in relation to the licensed activity.

F.2. Human and Financial Resources

Article 22. Human and financial resources

Each Contracting Party shall take the appropriate steps to ensure that:

i) qualified staff are available as needed for safety-related activities during the operating lifetime of a spent fuel and a radioactive waste management facility;

ii) adequate financial resources are available to support the safety of facilities for spent fuel and radioactive waste management during their operating lifetime and for decommissioning;

iii) financial provision is made which will enable the appropriate institutional controls and monitoring agreements to be continued for the period deemed necessary following the closure of a disposal facility.

Financial resources

All the radioactive waste management facilities are under the jurisdiction of state bodies, therefore financial resources to support their safety during their operating lifetime as well as for their decommissioning shall be allocated from the republican budget by requests (applications) of the operating organizations when necessary. Funding of works on the safety maintenance and institutional control of storage facilities of the Chernobyl originated decontamination waste shall be performed within the state programs for elimination of consequences of the Chernobyl NPP Catastrophe.

Design and construction of the NPP in the Republic of Belarus shall be financed from the republican budget, as well as from the export credit loan granted under the Agreement between the Government of the Republic of Belarus and the Government of the Russian Federation on granting of the Republic of Belarus with an export credit loan for the nuclear power plant construction on the territory of the Republic of Belarus of November 25, 2011. It is envisaged that the credit loan shall cover 90 percent of the NPP construction agreement price.

The Ministry of Energy of the Republic of Belarus shall provide for the performance by the Republican Unitary Enterprise “Belarusian Nuclear Power Plant,” in accordance with the agreements (contracts), permanent and appropriate financing of all the works and services on the design, construction and commissioning of the NPP, as well as supply of all the goods needed.

For the purpose of financing of research, and other works for the support and improvement of safety of the nuclear and (or) storage facility, the Republican Unitary Enterprise “Belarusian Nuclear Power Plant,” prior to the nuclear facility commissioning, shall create a financing fund for the support and improvement of safety of the nuclear and (or) storage facility.

For the purposes of decommissioning, early decommissioning or limitation of the operational characteristics of the nuclear facility, the Republican Unitary Enterprise “Belarusian Nuclear Power Plant” shall create the nuclear facility decommissioning fund. The nuclear facility decommissioning fund shall be used solely for financing measures stipulated by the programs of decommissioning, early decommissioning or limitation of the operational characteristics of the nuclear and (or) storage facility.

Human resources

The operating organization shall provide the radioactive waste management facilities with skilled personnel in the area of nuclear and radiation safety assurance.

Availability of skilled personnel in the area of nuclear and radiation safety assurance is the general requirement for obtaining a special permit (license) for the activity in the use of nuclear energy and sources of ionizing radiation.

A national system is formed in the country for personnel training aimed for provision of nuclear energy industry with highly skilled specialists, as well as for further maintenance of the relevant level of knowledge for the safe, reliable and effective NPP operation. The personnel training system includes a complex of administrative and technical measures of the state administrative bodies, higher and specialized secondary educational establishments, vocational training colleges and other state organizations.

For the purpose of personnel training in the area of nuclear energy, the State Program of Training Personnel for Nuclear Energy Industry of the Republic of Belarus for 2008-2020 is being implemented in Belarus. The aim of the program is to arrange the comprehensive personnel training system which contributes to gaining knowledge and skills necessary for the NPP construction and safe operation, assurance of nuclear and radiation safety, safety of the NPP personnel, population and environment (amended in 2013 so as to take into account up-to-date assessment of the need for human and financial resources).

Based on the needs, according to applications of state bodies (organizations), the government order is formed for personnel training: scope of training, retraining, skills improvement (maintenance) of specialists, highly skilled scientists is determined on an annual basis in terms of professions and regular labour force; educational establishments are determined that are currently training personnel; annual training plans are brought to the notice of the respective educational establishments.

In the framework of the State Program:

the country’s higher educational establishments (educational establishments Belarusian National Technical University, Belarusian State University of Informatics and Radioelectronics, Belarusian State University, International Sakharov Environmental University) started training students in 8 new nuclear energy specialties;

tutoring of teachers and scientists of higher educational institutions abroad is arranged;

work experience internship of students in the advanced nuclear energy countries is arranged.

Taking into account the primary importance of personnel training for the nuclear energy program, the IAEA technical cooperation program “Development of Human Resource and System of Specialists Training for the Nuclear Energy Program” is being currently implemented in the Republic of Belarus, which shall be coordinated by the Ministry of Energy of the Republic of Belarus in cooperation with the Ministry of Education of the Republic of Belarus and the National Academy of Sciences of Belarus. This program provides expert and consultation support of creation of the personnel training system for nuclear energy industry based on the IAEA international experience and recommendations and involves holding seminars and educational training, visits of Belarusian scientists and university teachers to the NPP training points and foreign research institutes, visits of Belarusian specialists of the existing NPPs and those being constructed, as well as development and supply of the computer-based training system for organizations participating in the Belarusian NPP construction project implementation.

Skills improvement of the regulatory body’s specialists shall be performed in the framework of the State Program of Staff Training for Nuclear Energy Industry of the Republic of Belarus for 2008-2020, as well as in the framework of the IAEA and the European Union projects implementation.

F.3. Quality Assurance

Article 23. Quality assurance

Each Contracting Party shall take the necessary steps to ensure that appropriate quality assurance programs concerning the safety of spent fuel and radioactive waste management are established and implemented.

The operating organization shall ensure arrangement and performance of works of such scope and quality as to meet the requirements of technical normative legal acts at all the stages of placement, design, construction, commissioning, operation, operational characteristics limitation, life extension, decommissioning of the nuclear and (or) storage facility. Organizations which carry out design and survey, research, development and process works, engineering and production of equipment for the nuclear and (or) storage facility, scientific support, other works and (or) services concerning the use of nuclear energy, shall ensure works performance and (or) services provision in such scope and quality as to meet the requirements of technical normative legal acts, and are responsible for the quality of the works performed and (or) services provided within the statutory service life determined for the nuclear and (or) storage facility by the project.

In accordance with the Regulation on Licensing of Certain Types of Activity, for the purpose of carrying out activities in the use of nuclear energy, the requirement of the availability of the quality management and (or) control system shall be the general requirement for obtaining a special permit (license) to carry out activities in the use of nuclear energy and sources of ionizing radiation.

In compliance with standards and regulations on nuclear and radiation safety assurance “Radioactive Waste Management Safety. General Provisions”, the operating organization, for the purpose of safety assurance at all stages of RW management, as well as safe operation of systems (elements), structures and components of the facility shall develop and apply a quality assurance program.

Requirements to the composition and content of the quality assurance programs are determined by a range of technical normative legal acts. The quality assurance programs shall be realized at all stages of the RW management facility life cycle, which includes the site selection, construction (including design), equipment manufacturing, commissioning, operation and decommissioning of the RW management facility. The component part of the quality assurance shall be its control.

The operating organization shall create a quality assurance system, in the framework of which the overall quality assurance program and special quality assurance programs shall be developed. Organizations which carry out works and provide services for the operating organization shall develop special programs for corresponding activities within the overall quality assurance program.

F.4. Operational Radiation Protection

Article 24. Operational radiation protection

1. Each Contracting Party shall take the appropriate steps 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 steps 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 steps 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 to radiation safety assurance are determined by the Law of the Republic of Belarus “On Radiation Safety of the Population”.

Legislation determined radiation values for standardization purposes and established requirements for basic dose limitations, acceptable levels of ionizing radiation exposure and other requirements for human exposure limitation. There are three classes of standards in the Republic of Belarus for “population” and “workers (personnel)” categories of exposed persons: basic dose limitations; dose constraints and reference levels; acceptable levels of mono-factor exposure.

The following basic limitations of doses resulting from ionizing radiation sources are established:

average annual effective dose for population is 0.001 Sv or effective dose of the lifetime period (70 years) – 0.07 Sv; in particular years higher values of the effective dose are allowed, provided that the average annual effective dose for five consecutive years shall not exceed 0.001 Sv;

average annual effective dose for workers (personnel) is 0.02 Sv or effective dose for the period of labour activity (50 years) – 1 Sv; the annual effective dose up to 0.05 Sv is acceptable, provided that the average annual effective dose for five consecutive years shall not exceed 0.02 Sv.

Resolution of the Ministry of Health of the Republic of Belarus of 28.12.2012 No. 213 approved Sanitary Regulations and Standards “Requirements to Radiation Safety” and Sanitary-Hygienic Standard “Radiation Exposure Assessment Criteria”. These documents are developed in accordance with the IAEA standard “Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards. General Safety Requirements Part 3/Vienna, 2011”. They establish requirements to radiation safety assurance in different types of ionizing radiation exposure; determine quantitative and qualitative values of indicators of ionizing radiation impact on man. Sanitary Regulations and Standards “Requirements to Radiation Safety” establish new criteria for response to nuclear and radiological emergency situations.

In order to keep exposure of population, personnel of the radioactive waste management facility as low as reasonably achievable, economic and social factors being taken into account, the national regulatory documents include the following measures:

safety analysis report preparation;

development and approval of dose constraints and reference levels of the radiation factor impact to personnel and population, with the principle of optimization and efficiency of arrangements for radiological situation improvement taken into account;

creation of working conditions meeting the requirements of regulations, provision of all the workers with personal protective equipment;

systematic control of radiological situation at work places, on the facility territory, in buffer and observation areas, as well as that of release, discharge of radioactive substances which shall not exceed the stated limits;

control and registration of individual exposure doses of personnel and population in compliance with the unified state system of control and accounting of exposure doses.

F.5. Emergency Preparedness

Article 25. Emergency preparedness

1. Each Contracting Party shall ensure that before and during operation of a spent fuel or radioactive waste management facility there are appropriate on-site and, if necessary, off-site emergency plans. Such emergency plans should be tested at an appropriate frequency.

2. Each Contracting Party shall take the appropriate steps for the preparation and testing of emergency plants for its territory insofar as it is likely to be affected in the event of a radiological emergency at a spent fuel or radioactive waste management facility in the vicinity of its territory.

Requirements to radiation safety assurance in the event of a radiation emergency, a nuclear and radiological emergency situation are determined by the

Law of the Republic of Belarus «On Radiation Safety of Population» and the Law of the Republic of Belarus «On the Use of Atomic Energy».

In the Republic of Belarus the system of nuclear and radiological accident response is integrated into the national system of emergency response. There is an operating State System for the Prevention and Liquidation of Emergency Situations (SSES). Main requirements to the system are determined by the Law of the Republic of Belarus «On protection of the population and territories from emergency situations of natural and man-made origin».

Plan for the protection of population and territories of the Republic of Belarus from emergency situations natural and man-made origin, a section of which is the Plan for the Protection against Radiation Accidents, is developed, approved and regularly corrected.

Based on the Plan of Protection from Radiation Accidents, sections of regional and branch plans are developed to detail arrangements of the Republican Plan.

Resolution of the Government of the Republic of Belarus of August 27, 2010 No. 1242 on Approval of the Regulation on the Terms and Procedure for Emergency Plans Development determines the terms and procedure for development of external and internal emergency plans which establish measures for assurance of emergency preparedness and emergency response in the event of a radiation accident occurred in the course of the nuclear energy use, requirements to their content, approval and revision procedure.

The external emergency plan determines emergency response areas, actions of the republican regulatory bodies, local government and self-government authorities, state and other organizations and citizens in the event of a radiation accident occurred in the course of the nuclear energy use, including at storage facilities located outside the territory of the Republic of Belarus closer than 100 km from the State Border of the Republic of Belarus.

The external emergency plan is subject to annual correction.

The internal emergency plan determines actions of the operating organization in the event of a radiation accident aimed for its liquidation, limitation or reduction of the aftermath.

The internal emergency plan is developed and approved by the operating organization upon agreement with the relevant regulatory bodies in at least six months prior to start of the planned commissioning of a storage facility.

The internal emergency plan is subject to correction as deemed necessary but at least once in 3 years.

The compulsory correction of the internal emergency plan is performed by the operating organization in the event of new storage facilities commissioning, after reconstruction or liquidation of the existing storage facilities, in the presence of data on radiation accidents at similar facilities both in the Republic of Belarus and abroad. The correction can be performed in other cases as the operating organization may determine.

In addition, the operating organization shall:

develop methods and programs for emergency response drills aimed at testing of personnel actions in the event of an accident, and ensure periodicity (at least once in

two years) of the specified drills, current operation of the facility being taken into account;

ensure preparedness of personnel to respond to design-basis and beyond-design-basis accidents. The respective instructions and manuals shall determine immediate actions of personnel for possible accidents containment and liquidation of their consequences.

Managing body for such system is the Ministry for Emergency Situations which coordinates and organizes activities for preparedness assurance. They include organization of drills, information-exchange as well as arrangement of cooperation with the countries which have spent fuel or radioactive waste management facilities on their territories, plans revision, etc.

F.6. Decommissioning

Article 26. Decommissioning

Each Contracting Party shall take the appropriate steps to ensure the safety of decommissioning of a nuclear facility. Such steps shall ensure that:

- i) qualified staff and adequate financial resources are available;*
- ii) the provisions of Article 24 with respect to operational radiation protection, discharges and unplanned and uncontrolled releases are applied;*
- iii) the provisions of Article 25 with respect to emergency preparedness are applied; and*
- iv) records of information important to decommissioning are kept.*

In compliance with the Laws of the Republic of Belarus «On the Use of Atomic Energy» and «On Radiation Safety of Population», an action plan for safe decommissioning of the facility shall be stipulated by the design.

Prior to expiry of the design operating life, the operating organization shall ensure a decommissioning project development, including:

organization of safe SNF removal from storage facilities and its subsequent transfer from the site;

decontamination in order to reduce the overall exposure of personnel and population in the course of works;

equipment disassembly at the facility site;

radioactive waste management;

organizational and technical measures for radiation safety assurance. In addition, the design stage shall include steps to ensure that established limitation of individual exposure doses of personnel during decommissioning is not exceeded;

assessment of radiation impact to the environment during decommissioning;

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

quantity and quality of the personnel required;

measures of safety assurance at possible accidents which may occur in the course of decommissioning;

organizational and technical measures for physical protection assurance.

The design shall justify the main equipment operating life limits and determine criteria for its replacement.

Prior to start of the design decommissioning works, a program for quality assurance of the works performed shall be developed.

Information on the planned activity related to the RW management facility decommissioning is given in the Safety Analysis Report.

Decommissioning works shall be performed by specially trained personnel of the facility or that of other organizations in accordance with the procedure established by the legislation.

Section G. SAFETY OF SPENT FUEL MANAGEMENT

Article 4. General safety requirements

Each Contracting Party shall take the appropriate steps to ensure that at all stages of spent fuel management individuals, society and the environment are adequately protected against radiological hazards.

In so doing, each Contracting Party shall take the appropriate steps to:

- i) ensure that criticality and removal of residual heat generated during spent fuel management are adequately addressed;*
- ii) ensure that the generation of radioactive waste associated with spent fuel management is kept to the minimum practicable, consistent with the type of fuel cycle policy adopted;*
- iii) take into account interdependencies among the different steps in spent fuel management;*
- iv) provide for effective protection of individuals, society and environment, by applying at the national level suitable protective methods as approved by the regulatory body, in the framework of its national legislation which has due regard to internationally endorsed criteria and standards;*
- v) take into account the biological, chemical and other hazards that may be associated with spent fuel management;*
- vi) strive to avoid actions that impose reasonably predictable impacts on the future generations greater than those permitted for the current generation;*
- vii) aim to avoid imposing undue burdens on future generations.*

Spent nuclear fuel management facility “Iskra”

In the Republic of Belarus all the appropriate steps are taken to provide for effective protection of personnel, population and environment against radiological hazards associated with spent fuel storage at the spent nuclear fuel management facility “Iskra” of SSI “JIPNR – Sosny” until transfer to the Russian Federation.

The spent nuclear fuel was safeguarded by IAEA in accordance with the Agreement between the Republic of Belarus and the International Atomic Energy Agency on Application of Safeguards in relation to Non-Proliferation Treaty of April 14, 1995 (INFCIRC/495) within the whole period of being under jurisdiction of the Republic of Belarus.

Belarusian NPP

A set of measures for safety assurance during the spent nuclear fuel management at the Belarusian NPP is stipulated by design decisions.

When unloaded from the reactor, spent nuclear fuel (SNF) shall be directed to the SNF at-reactor storage system. The system is a storage pool furnished with the necessary equipment and systems.

The SNF at-reactor storage system is intended for the unloaded spent nuclear fuel storage in order to reduce activity and afterpower of spent fuel assemblies to the permitted values allowing its transportation.

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

- placement of SNF unloaded from the reactor in case of reloading, as well as placement of the core fuel emergency offloading;
- storage of spent nuclear fuel until removed from the reactor building;
- SNF residual heat removal;
- biological protection of personnel against the fuel stored in the pool.

The SNF at-reactor storage system provides for storage in the reactor building within 10 years with regard to scheduled refueling and the whole core unloading at any moment of the NPP operation.

After spent nuclear fuel storage in the SNF at-reactor storage system to achieve parameters allowing its transportation from the NPP to the radiochemical plant for

processing in the TK-VG-13 container car, transportation of spent fuel assemblies is performed using a shipping packaging set of TUK-13/1V type.

Section H. SAFETY OF RADIOACTIVE WASTE MANAGEMENT

H.1. General Safety Requirements

Article 11. General Safety Requirements

Each Contracting Party shall take the appropriate steps to ensure that at all stages of radioactive waste management individuals, society and the environment are adequately protected against radiological and other hazards.

In so doing, each Contracting Party shall take the appropriate steps to:

- i) ensure that criticality and removal of residual heat generated during radioactive management are adequately addressed;*
- ii) ensure that the generation of radioactive waste is kept to the minimum practicable;*
- iii) take into account interdependencies among the different steps in radioactive waste management;*
- iv) provide for effective protection of individuals, society and environment, by applying at the national level suitable protective methods as approved by the regulatory body, in the framework of its national legislation which has due regard to internationally endorsed criteria and standards;*
- v) take into account the biological, chemical and other hazards that may be associated with radioactive waste management;*
- vi) strive to avoid actions that impose reasonably predictable impacts on the future generations greater than those permitted for the current generation;*
- vii) aim to avoid imposing undue burdens on future generations.*

In accordance with Article 12 of the Law on Radiation Safety of Population, the operating organization shall:

- comply with the legislation;
- plan and implement measures to ensure radiation safety;
- control radiation situation at work places, in premises, on the territories of organizations, in buffer and observation areas, as well as release, discharge of radioactive waste;
- perform control and accounting of individual exposure doses of the workers (personnel);
- perform training and attestation of the officials and performers of works, radiation safety assurance supervisory services specialists, other persons permanently or temporarily dealing with the sources of ionizing radiation, on radiation safety assurance;
- organize preliminary (at the commencement of employment) and periodic medical examinations of workers (personnel);
- inform workers (personnel), on a regular basis, on the levels of ionizing radiation at their work places and the value of their individual exposure doses;
- inform in the established procedure the Ministry for Emergency Situations of the Republic of Belarus on radiation accidents, other situations which influence the radiation safety;
- perform decommissioning of ionizing radiation sources;
- follow the instructions on radiation safety assurance of the officials of the Ministry for Emergency Situations of the Republic of Belarus, bodies and institutions performing state sanitary supervision;
- ensure radioactive waste registration in accordance with procedure stated by legislation of the Republic of Belarus;
- take measures to ensure radioactive waste safety;
- assess effectiveness of radiation safety assurance measures;

ensure the realization of the rights of citizens in the area of radiation safety.

In accordance with the specified law provisions, the operating organization, when performing radioactive waste management with regard to peculiarities and terms of planning and taking measures to assure radiation safety, shall have an approved radioactive waste management scheme agreed with the Ministry for Emergency Situations, the Ministry of Natural Resources and Environmental Protection, authorized state bodies and institutions performing state sanitary supervision, local executive and regulatory authorities.

In the course of radioactive waste management it shall be ensured that:
the generation of radioactive waste is kept to the minimum practicable;

hazardous properties (toxicity, pathogenicity, explosion hazard, fire hazard, high recreation ability, ability to generate persistent organic pollutants in the course of neutralization) of radioactive waste are determined for the purpose of safe radioactive waste management;

radioactive waste is collected and separated into types in accordance with the technical normative legal acts.

Radioactive waste transportation is only allowed with an accompanying passport for radioactive waste transportation.

Nuclear and radioactive waste safety assurance standards and regulations "Safety of Radioactive Waste Management. General Provisions" establish requirements to the design and operational documentation, radiation control at the facilities, long-term storage (disposal) of radioactive waste, safety assurance program, measures of radiation accident liquidation, as well as to the accounting, control and inventory of radioactive waste.

Requirements to radioactive waste management are also determined by the Sanitary Rules for Radioactive Waste Management (SPORO-2005).

The sanitary standards, regulations and sanitary-hygienic standards "Hygienic Requirements to the Design and Operation of Nuclear Power Plants" establish requirements to the management of solid, liquid and gaseous, including combustible, radioactive waste generated at nuclear power plants. Established are also the requirements to accounting, radiation control of radioactive waste management and to its transportation.

The general safety requirements of radioactive waste management are established by legislative acts specified in Section E.

H.2. Existing Facilities

Article 12. Existing facilities and past practices

Each Contracting Party shall in due course take the appropriate steps 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 made to upgrade the safety of such a facility;

ii) the results of past practices in order to determine whether any intervention is needed for reasons of radiation protection bearing in mind that the reduction in detriment resulting from the reduction in dose should be sufficient to justify the harm and the costs, including the social costs, of the intervention.

The task of radiological safety assurance is solved with respect to all the facilities listed in Section D.

Specialized Enterprise for radioactive waste management UE Ekores

The RW processing unit with laboratories and the conditioned solid RW storage facility were built in 2013 within the second and third stages of the specialized enterprise UE Ekores reconstruction.

The specified facilities will allow for processing and conditioning of solid and liquid RW coming to UE Ekores with their subsequent long-term storage in a conditioned form.

The RW conditioning method shall be waste cementing in a special packaging set which can be represented by: 200-liter metal drums, metal containers, reinforced concrete containers.

Conditioned RW shall be stored in sections of the solid conditioned RW storage facility.

Preparatory work aimed for obtaining a license for RW processing is currently performed by UE Ekores.

Extraction of RW from the mothballed “old storage facilities” (operated from 1963 to 1979) and near-surface solid waste storage facilities (built in 1977) with the purpose of its further transfer to a safe state by means of processing and conditioning is an actual task for UE Ekores.

Major attention in this field is paid to international cooperation. In 2013 negotiations were held with the representatives of Rosatom State Corporation (Russian Federation) on the provision of international technical assistance for improvement of the safety of radioactive waste storage facilities within the State Program of the Russian Federation “Foreign-Economic Activity Development” for a period of 2013 - 2018.

The issue of cooperation on the specified matter was discussed in April 2014 at the meeting of the Commission for the Peaceful Use of Atomic Energy formed within the Eurasian Economic Community Integration Committee.

In accordance with the international technical assistance project “Improvement of Safety of Radiation Facilities by Physical Protection Modernization, Special Vehicles and Unused Radiation Facilities Decommissioning”, which is being implemented by the National Security Technologies (USA), in 2013 the work was carried out on modernization of the physical protection system of the UE Ekores facilities. Modernization of special RW transportation vehicles is scheduled within the specified project.

Decontamination waste disposal facilities

In order to prevent unauthorized access to the decontamination waste disposal facilities and assure safety of the disposed waste fencing is installed along the perimeter of disposal sites, as well as radiation signs. Buffer area with a radius at least 500 m is established around the disposal sites, where no activity, except that associated with DWDF operation, is allowed.

After filling the bowls of II and III category disposal sites with waste, their mothballing is done with clay shield formation and subsequent packing of local soil layer 1 m thick.

The operating organizations shall perform a set of annual arrangements.

The level of ground waters is monitored in DWDFs furnished with boreholes. Radionuclides transition from disposal facilities to ground waters is controlled by water sampling.

The existing and mothballed DWDFs of all the categories are subject to systematic radiation control and monitoring of their physical state. Periodicity of radiation control and monitoring, scope of DWDF installation works are determined by the Schedule of Radiation Control, Monitoring and Decontamination Waste Disposal Facilities Management developed annually by the specialized enterprises.

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

dose rate measuring at permanent check points;

measuring of specific activity of Cs-137, Sr-90 in water samples from the check boreholes at least twice a year;

measuring of ground waters level in the check boreholes.

At the existing DWDFs dose rate shall be controlled:

daily – in case of works performed directly where deactivation waste taking out is most likely (approach roads, machinery work places in waste planning and unloading);

at least once a month in the course of disposal works – at five permanent check points outside the disposal container within the fencing in accordance with the monitoring plan.

At DWDF-III dose rate is measured in the check points. The number of check points for DWDF-III monitoring on the area basis is presented in Table H.2.1.

Table H.2.1. Number of check points for DWDF-III monitoring on the area basis

DWDF-III, hectare	Check points number
Up to 0.01	1
0.01-0.10	4
0.11-0.50	8
0.51-1.00	15
1.01-2.00	25
2.01 and more	30

Monitoring of state of all the DWDF categories includes examination of their technical state. DWDF technical state examination is generally performed at the same time as their radiation control, as well as after floods, heavy rains, hurricanes, etc. At visual examination of DWDF engineering arrangement systems the fencing, upper shelter, radiation signs and approach roads state is determined.

Radioactive waste storage facilities at former locations of the USSR military forces

In order to reduce radiological hazards, bring territories to compliance with the radiation safety requirements, as well as provide for the relevant physical protection

of ionizing radiation sources, work is being carried out in the Republic of Belarus aimed to search and detect radioactive waste storage facilities at former locations of the USSR military forces.

Such RWSFs are the facilities having no official status within the legislation, because of the absence of the design documentation and information on the sources of ionizing radiation located.

In 2010 RWSF “Gomel-30” was examined with the following conclusions made:

1. The RWSF “Gomel-30” structure is generally compliant with the Standard Design of a Radioactive Waste Storage Facility No. 62-II-04 (height – 2.4 m from the ground surface, well diameter – 1.76 m).

2. The radionuclide composition of the placed sources includes radioactive isotopes of Cs-137 and Co-60.

3. At the present time the condition of structural materials of the RWSF radiation protection is able to ensure proper leak tightness and protection from radionuclides penetration into the environment.

4. There is no threat of exposure for the population and workers in the vicinity exceeding the established dose limitations, provided that the necessary physical protection of RWSF is arranged.

5. The technical state and structural scheme of RWSF show that the structure is able to bear mounting and transportation loads.

The examination results indicate reasonability of development of technology and procedure of the RWSF “Gomel-30” liquidation with the well column with the SIRs enclosed within transferred without its fragmentation to UE Ekores for long-term storage.

Decision of further RWSF “Gomel-30” management will be made by the Commission for Emergency Situations attached to the Council of Ministers of the Republic of Belarus with the information on its examination, financial and other factors taken into account.

23 former locations of the USSR military forces with possible radioactive waste storage facilities were examined in 2011 – 2013.

Among them 12 facilities were examined in 2011:

- Brest Region - facilities “Les Litva”, “Matyevka” (Ivatsevichi District), “Liberpol-1”, “Liberpol-2” and “Slobudka” (Pruzhany District), “Zakrutin” and “Borovaya” (Malorita District), “Obrovo” (Ivanovo District);

- Gomel Region - facilities “Zhytkavichy” (Zhytkavichy District), “Petrikov” (Petrikov District), “Korovatichi” and “Borschovka” (Rechitsa District).

6 facilities were examined in 2012:

- Minsk Region - facilities “Adamovo” (Slutsk District), “Schytkovichi” (Starye Dorogi District);

- Mogilev Region - facilities “Lapichi”, “Tsel” and “Bolshaya Gorozha” (Osipovich District);

- Gomel Region - facility “Mozyr” (Mozyr District).

5 facilities were examined in 2013:

- Grodno Region - facilities “Schuchin”, “Yaloshevichi” (Schuchin District), “Alekhnovichi” (Dyatlovo District);

- Mogilev Region - facilities “Beryozovka” (Glusk, Mogilev, Slavgorod, Shklov Districts);
- Minsk Region - facility “Stankovo” (Dzerzhinsk District).

The results of radiometric and radiochemical surveys indicated no significant contamination of soils near these facilities and water in the wells with radionuclides of Cs-137 and Sr-90.

Based on the examination results the respective database (cadastre) was added to include information on the facilities location and coordinates, hydrogeological conditions at the RWSF locations, RWSF structural peculiarities and structure state, RWSF walls filling, radiation situation, etc.

RWSF search and examination continue to be carried out in 2014.

SSI “JIPNR – Sosny” liquid radioactive waste processing facility

The facility performs processing of liquid radioactive waste resulting from research activity at the site of SSI “JIPNR – Sosny”.

The facility performs processing of liquid radioactive waste using the following methods: selective sorption, microfiltration, reverse osmosis, ion exchange.

Radioactive waste conditioning is performed by cementing.

Solid radioactive waste resulting from processing and conditioning is transferred to the UE Ekores for long-term storage.

Belarusian NPP

The nuclear power plant RW management shall be performed in the following manner.

High-level operational waste of the NPP shall be stored on the territory of the nuclear power plant within its whole operating lifetime life.

Conditioned very low-level, low-level and intermediate-level operational RW shall be stored in the RW storage facility on the territory of the NPP within 10 years.

Upon the expiry of temporary storage period of such RW in the NPP storage facility, it shall be moved to the planned RW disposal facility for storage and/or disposal.

Upon the NPP’s decommissioning and its subsequent dismantling, the intermediate- and low-level radioactive waste generated is planned to be disposed in the specified disposal facility.

The following issues are being considered within the respective tasks of the State Program “Scientific Support of Nuclear Energy Industry Development in the Republic of Belarus for 2009 - 2010 and for a period up to 2020”:

construction of disposal facility for very low-level, low-level and intermediate-level RW, including operational waste of the NPP;

disposal of high-level NPP operational waste, as well as high-level waste resulting from the NPP dismantling and in the event of return of the high-level waste to the republic after the NPP spent nuclear fuel processing in the Russian Federation.

The results of these works will help determine the fundamental design solutions for creation of the radioactive waste disposal system and assess investment and operational costs for creation of their disposal system.

H.3. Siting, Design

Article 13. Siting of proposed facilities

1. Each Contracting Party shall take the appropriate steps to ensure that procedures are established and implemented for a proposed radioactive waste management facility:

- i) to evaluate all relevant site-related factors likely to affect the safety of such a facility during its operating lifetime as well as that of a disposal facility after closure;
- ii) to evaluate the likely safety impact of such a facility on individuals, society and the environment, taking into account possible evolution of the site conditions of disposal facilities after closure;
- iii) to make information on the safety of such a facility available to members of the public;
- iv) to consult Contracting Parties in the vicinity of such a facility, insofar as they are likely to be affected by that facility, and provide them, upon their request, with general data relating to the facility to enable them to evaluate the likely safety impact of the facility upon their territory.

2. In so doing, each Contracting Party shall take the appropriate steps to ensure that such facilities shall not have unacceptable effects on other Contracting Parties by being sited in accordance with general safety requirements of Article 11.

Article 14. Design and construction of facilities

Each Contracting Party shall take the appropriate steps to ensure that:

- i) the design and construction of a radioactive waste management facility provide for suitable measures to limit possible radiological impacts on individuals, society and the environment, including those from discharges or uncontrolled releases;
- ii) at the design stage, conceptual plans and, as necessary, technical provisions for the decommissioning of a radioactive waste management facility other than a disposal facility are prepared;
- iii) at the design stage, technical provisions for the closure of a disposal facility are prepared;
- iv) the technologies incorporated in the design and construction of a radioactive waste management facility are supported by experience, testing or analysis.

The Laws of the Republic of Belarus «On the Use of Atomic Energy» and «On Radiation Safety of Population» establish requirements to the siting activity, design and construction of radioactive waste management facilities.

Siting of radioactive waste management facilities is performed by decision of the Council of Ministers of the Republic of Belarus with regard to the proposals of the interested republican regulatory bodies. Land plots and subsoil plots for siting of such facilities are provided in accordance with procedure stated by legislation on the protection and use of land, subsoil.

Design documentation for radioactive waste management facilities shall be developed in compliance with legislation on construction, architecture and town planning, on the environmental protection and rational use of natural resources, on sanitary and hygienic well-being of population.

The design of radioactive waste management facilities shall take into account the factors that affect the safety of such facilities both during its operating lifetime and after closure. In addition, impacts of such facilities on the environment shall be assessed in compliance with legislation on the environmental protection.

Requirements to siting, design of radiation facilities, including radioactive waste management facilities, are determined by the Sanitary Regulations and Standards “Requirements to Personnel and Population Radiation Safety Assurance in Operation of Nuclear Energy Use Facilities and Sources of Ionizing Radiation”, as well as the “Sanitary Rules for Radioactive Waste Management (SPORO – 2005) 2.6.6.11-7-2005”.

General requirements to the design documentation of radioactive waste management facilities are also determined by the Standards and Regulations “Safety of Radioactive Waste Management. General Provisions”.

Radioactive waste disposal facilities siting and design requirements are established by the standards and regulations “Radioactive Waste Disposal. Principles, Criteria and General Safety Requirements”.

The following sites shall be selected for specialized radioactive waste management facilities:

those located at underpopulated and flood-free territories;

those having a steady wind regime;

those limiting radioactive substances travel to outside the industrial site of the facility due to their topographic, geological and hydrogeological conditions.

A site for a newly built facility shall be selected with account for its potential radiation, chemical and fire hazard for population and the environment.

Locations of specialized radioactive waste management facilities shall be evaluated taking into account impacts on the designed facility’s safety of metrological, hydrological and seismic factors at regular operation and in emergency situations.

H.4. Safety Assessment of Facilities

Article 15. Assessment of safety of facilities

Each Contracting Party shall take the appropriate steps to ensure that:

i) before construction of a radioactive waste management facility, a systematic safety assessment and an environmental assessment appropriate to the hazard presented by the facility and covering its operating lifetime shall be carried out;

ii) in addition, before construction of a disposal facility, a systematic safety assessment and an environmental assessment for the period following closure shall be carried out and the results evaluated against the criteria established by the regulatory body;

iii) before the operation of a radioactive waste management facility, updated and detailed version of the safety assessment and of the environmental assessment shall be prepared when deemed necessary to complement the assessments referred to in paragraph i).

In accordance with Article 11 of the Law «On Radiation Safety of Population», the facilities safety assessment shall be performed with the following basic indicators:

description of radioactive contamination of the environment;

efficiency analysis of measures for radiation safety assurance and compliance with the standards, regulations and sanitary-hygienic standards;

radiation accidents likelihood and their expected scope;

level of preparedness to the efficient liquidation of radiation accidents and their consequences;

analysis of exposure doses of individual groups of population from all the ionizing radiation sources;

number of persons exposed over the established dose limitations.

Radiation safety status assessment shall be performed when planning and taking measures for radiation safety assurance, and when analyzing efficiency of the specified measures by the republican regulatory bodies, other state organizations subordinate to the Government of the Republic of Belarus, local executive and regulatory authorities, as well as the user of the ionizing radiation sources.

The legislation also established that organizations operating radioactive waste management facilities shall develop a safety analysis report. The report shall be developed to justify the safety of radioactive waste management facilities both during their operating lifetime and after decommissioning.

The report shall be developed by the operating organization prior to the commissioning of a radioactive waste management facility.

The operating organization shall ensure that the report reflects actual state of radioactive waste management within the whole operating lifetime of the facility.

Section I. TRANSBOUNDARY MOVEMENT

Article 27. Transboundary movement

1. Each Contracting Party involved in transboundary movement shall take the appropriate steps 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 steps 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 steps 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 shall be performed in accordance with the Law of the Republic of Belarus «On Radiation Safety of Population», other legislative acts, including those on the use of nuclear energy, external economic activity, legislation on customs regulation, as well as international agreements of the Republic of Belarus.

In accordance with the Law of the Republic of Belarus «On Radiation Safety of Population», radioactive waste generated in the Republic of Belarus only may be imported to the territory of the Republic of Belarus with the purpose of storage or disposal.

Import, including from the territories of states, in respect of which the customs control and customs registration is abolished, and (or) export of sources of ionizing radiation shall be performed against a permit issued by Gosatomnadzor in the procedure established by the Council of Ministers of the Republic of Belarus.

Resolution of the Eurasian Economic Commission (including the Republic of Belarus, the Republic of Kazakhstan and the Russian Federation) of April 16, 2010 No. 240 on Control of Movement of Sources of Ionizing Radiation established that before completion of development of the unified measures for export control within the Customs Union member states of the Customs Union shall take steps to control movement of sources of ionizing radiation in accordance with the

national legislation with the purpose of assurance of control of ionizing radiation sources movement and prevention of their unauthorized import to the territory of the Customs Union.

Resolution of the Council of Ministers of the Republic of Belarus of September 23, 2008 No. 1397 on Certain Issues of the Procedure for Movement of Certain Types of Products across the State Border of the Republic of Belarus determined that import and (or) export of sources of ionizing radiation is allowed subject to the respective permit of the Department for Nuclear and Radiation Safety of MES of the Republic of Belarus. In addition, the specified resolution approved:

Regulation on the procedure and terms for issuing by the Department for Supervision of the Safe Performance of Works in Industry and Department for Nuclear and Radiation Safety of the Ministry for Emergency Situations permits for import and (or) export of explosives, bombs and industrial blasting agents, sources of ionizing radiation restricted for movement across the State Border of the Republic of Belarus for non-economic reasons, as well as resolutions (approval documents) for import, export and transit of certain products specified in Section 2.13 of the Unified List of Products subject to bans or restrictions on import or export by member states of the Customs Union within the Eurasian Economic Community in trade with the third countries;

The list of sources of ionizing radiation restricted for movement across the State Border of the Republic of Belarus within import and (or) export for non-economic reasons, import and (or) export of which is allowed against a permit of the Department for Nuclear and Radiation Safety.

Resolution of the Council of Ministers of the Republic of Belarus of February 17, 2012 No.156 on Approval of the Unified List of Administrative Procedures Carried Out by State Bodies and Other Organizations with respect to Legal Entities and Individual Entrepreneurs, Addition to the Resolution of the Council of Ministers of the Republic of Belarus of February 14, 2009 No. 193 and Annulment of Certain Resolutions of the Council of Ministers of the Republic of Belarus determined a list of documents and (or) data to be submitted by the interested persons to Gosatomnadzor to carry out the administrative procedure “issuing (alteration, addition) a permit for import and (or) export of sources of ionizing radiation restricted for movement across the State Border of the Republic of Belarus for non-economic reasons”.

A permit for transit through the Republic of Belarus or export from the Republic of Belarus of spent nuclear fuel may be issued only subject to the consent of the relevant state body of the state of destination to accept the specified materials and its respective administrative and technical capabilities.

In order to obtain a permit for export of 1 and 2 categories sources, an applicant shall submit to Gosatomnadzor a completed declaration of export sealed radionuclide sources. The declaration shall be completed by the consignee and the relevant body of the consignee state and contain:

- information on the expected date of shipment,
- names and contact details of the consignee and the consignor,
- source information,

information from the consignee on the presence of a license, powers and other permits to receive a source (sources), compliance with the necessary national requirements in relation to safe storage, use or sale of the sources specified in the declaration,

confirmation by the relevant body of the consignee state of taking note of the declaration.

Resolution of the Council of Ministers of the Republic of Belarus of April 30, 2009 No. 560 on Approval of Regulation on the Procedure of Interaction of Republican Regulatory Bodies, other State Bodies and Organizations in the event of Detection of Sources of Ionizing Radiation, as well as of their Arrest at the State Border of the Republic of Belarus determined competence of state bodies in the event of detection of ionizing radiation sources, as well as in the event of their arrest in the course of movement across the State Border of the Republic of Belarus.

Joint Resolution of the Ministry of Health of the Republic of Belarus, the State Customs Committee of the Republic of Belarus and the State Border Committee of the Republic of Belarus of December 30, 2013 No. 135/34/16 approved an Instruction on the procedure (interaction) of the customs authorities of the Republic of Belarus, border authorities of the Republic of Belarus, bodies and institutions in charge of state sanitary supervision in case of quarantine control at the checkpoints on the State Border.

State Customs Committee of the Republic of Belarus (hereinafter – SCC) and State Border Committee of the Republic of Belarus (hereinafter – Gospogrankomitet) are actively working on countering unlawful transboundary movement of nuclear and radioactive materials across the State Border of the Republic of Belarus (hereinafter – the State Border).

With the purpose of arrangement of these measures and capacity building in physical nuclear safety, Gospogrankomitet implemented a range of international technical assistance projects.

Thus, in November 2013 the international technical assistance project with the European Commission “Improvement of Crossing the Border of Belarus” of TACIS Program for Nuclear Safety 2005 was completed. In the framework of this project the border service territorial bodies which carry out protection of the State Border with the European Union obtained three items of mobile laboratories of prompt response to nuclear and radiation incidents at the State Border. This project was a logical extension of the international technical assistance project with the Government of Japan “Modernization of System for Countering Illicit Trafficking of Nuclear and Radioactive Materials at the State Border of the Republic of Belarus (RADBEL) through Extension of the Existing Network of Mobile Prompt Response Laboratories of the Border Service” implemented in 2010-2011.

The project of cooperation of Gospogrankomitet with the Office of the Second Line of Defense of the Department of Energy of the United States of America (hereinafter – U.S. Department of Energy) in the field of countering nuclear terrorism and illicit transboundary trafficking of radioactive materials (hereinafter – the Project) was approved in 2013. The main goal of the Project is creation of the Integrated System of Detection, Countering and Interdiction of Illicit Trafficking of

Radioactive Materials at the State Border. The Project's strategy provides for the following activities:

- supplies of equipment, machinery and software;
- installation of the supplied equipment;
- organization of maintenance of the supplied equipment;
- information and advisory assistance (logistics, administration, consulting, examination, acceptance inspections, acceptance testing, information visits);
- training (seminars, courses, trainings).

In February 2014 in the framework of the Project the U.S. Department of Energy supplied the priority equipment for Gospogrankomitet required for physical nuclear safety assurance at the State Border for a period of the Ice Hockey World Championship 2014 in Minsk (8 spectrometers for radionuclide identification and 64 portable radiation control devices for search and detection of nuclear and other radioactive materials). In the course of discussion of further cooperation the U.S. Department of Energy representatives expressed their preparedness to supplies in 2014 of two pilot samples of mobile systems for nuclear and radioactive materials detection all the subdivisions directly protecting the State Border are planned to be equipped with.

In April 2014 with the support of the U.S. Department of Energy a training of radiation safety specialists of the border service was held aimed at detection of nuclear and other radioactive materials at the State Border, response to radiation incidents, as well as procedure for the use of radiation control equipment supplied within the Project.

All the subdivisions of the border service are involved in the State Border protection, including in interdiction of illicit transboundary trafficking of nuclear and other radioactive materials. In the course of their tasks performance from 2010 to 2013 the border service bodies prevented 22 attempts of illicit transboundary trafficking of radioactive materials transported in violation of legislation of the Republic of Belarus. No facts of illicit transboundary trafficking of nuclear materials have been detected.

Despite the positive dynamics in the technical and human capacity development in countering illicit transboundary trafficking of nuclear and other radioactive materials, the issue of the border service equipment with mobile prompt response laboratories, mobile detection systems, as well as portable radiation control devices is not fully resolved to date.

On the whole, with a network of mobile prompt response laboratories completed (3 items needed), as well as subject to full technical equipment with mobile detection systems and portable radiation control devices, the detection and response system created will allow to improve nuclear safety in the Republic of Belarus, raise operability and efficiency of countering illicit transboundary trafficking of nuclear and other radioactive materials, and, thus, contribute to efforts of the world community to combat international terrorism.

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 steps 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 unintended for further use are viewed as radioactive waste in the Republic of Belarus.

Upon the expiry of the assigned lifetime the use of the sealed radionuclide source or its storage shall be stopped. It is allowed to consider an issue of extension of the operating lifetime of sealed radionuclide sources in justified cases with the radiation parameters maintained within the limits that satisfy the user, with leak tightness maintained and defects absent, as well as their signs. To have the issue of extension of the operating lifetime of a sealed radionuclide source solved its user shall develop and agree with the bodies performing supervision of radiation safety assurance a program of actions on reexamination of a sealed radionuclide source. The issue of possible extension of the operating lifetime of a sealed radionuclide source shall be considered by a commission, including representatives of the source user, the bodies performing supervision of radiation safety assurance, and, if the sealed radionuclide source is manufactured in the Republic of Belarus, a representative of the manufacturer.

The Isotope Technologies Joint Closed Joint-Stock Company performs supplies of sources of ionizing radiation outside the territory of the Republic of Belarus. The current practice provides for return of disused radiation sources to the manufacturer to the Republic of Belarus, which is consistent with the provisions of the Code of Conduct on the Safety and Security of Radioactive Sources entered into by the Republic of Belarus.

After decommissioning radionuclide sources shall be handed over to the UE Ekores for long-term storage.

Section K. PLANNED ACTIVITY (GENERAL EFFORTS) FOR SAFETY IMPROVEMENT

The priority areas of the planned activity in radioactive waste management for the Republic of Belarus are as follows:

- further development of the normative legal base;
- development and approval of strategies of spent fuel and radioactive waste management in the Republic of Belarus;
- legislative definition of the state administrative body for radioactive waste management to ensure the formation and implementation of the state, investment and technical policy, long-term program of radioactive waste management, as well as development of the necessary infrastructure;
- further development of human capacity of the operating organizations, as well as bodies performing regulatory functions for nuclear and radiation safety assurance;
- solution of issues of the safety of spent fuel and radioactive waste management in the light of the Belarusian NPP construction;
- creation of a radioactive waste storage facility for very low-level, low-level and intermediate-level radioactive waste, including operational waste of the NPP;
- improvement of safety of the radioactive waste storage facility Ekores through extraction and conditioning of radioactive waste from the former storage facilities;
- detection of radioactive waste storage facilities at former locations of the Soviet Union military forces, as well as their long-term safety assurance;
- further performance of scheduled works for safety assurance of decontamination waste disposal facilities formed as a result of the works to overcome the consequences of the Chernobyl NPP catastrophe.

The Republic of Belarus plans to ensure the realization of the specified priority areas through the implementation of the current republican programs for nuclear and radiation safety assurance, interaction of the interested state administrative bodies, as well as international cooperation with partner countries and international organizations.

The IRRS (Integrated Regulatory Review Service) mission of the International Atomic Energy Agency is planned to be held in the Republic of Belarus with the purpose of consideration of the regulatory activity in the nuclear and radiation safety. The specified mission is scheduled for 2016.

With the purpose of implementation of the principles of openness, transparency and publicity of the nuclear and radiation safety assurance the Department for Nuclear and Radiation Safety of the Ministry for Emergency Situations of the Republic of Belarus reports its actions in this area to the interested public on its website (<http://www.gosatombadzor.gov.by>).

On this website one can find national reports of the Republic of Belarus in the framework of its obligations under the Joint Convention and the Convention on Nuclear Safety.

In conclusion, it should be noted that the existing system of radioactive waste and spent nuclear fuel safety assurance of the Republic of Belarus is being improved. Additional efforts, financial and other means will be required on the part of the Government and regulatory bodies of the Republic of Belarus to support its development.

Coordinated actions of the states in the framework of their obligations under the Joint Convention will facilitate the common efforts to maintain a high level of safety in the radioactive waste and spent fuel management both in each country and around the world.

The number of radioactive waste received by the UE Ekores for long-term storage from 2011 to 2013

Inventory of radioactive sources

Year	α -source number, pcs. activity, Bq	β - source number, pcs. activity, Bq	γ - source number, pcs. activity, Bq	n- source number, pcs. activity, Bq
2011	583 $2.05 \cdot 10^{10}$	584 $9.99 \cdot 10^9$	277 $2.44 \cdot 10^{14}$	1 $1.2 \cdot 10^9$
2012	1776 $1.63 \cdot 10^8$	313 $1.16 \cdot 10^{12}$	98 $3.97 \cdot 10^{12}$	11 $1.59 \cdot 10^{12}$
2013	614 $4.68 \cdot 10^9$	249 $1.33 \cdot 10^{13}$	270 $1.22 \cdot 10^{15}$	2 $2.6 \cdot 10^{11}$

Solid radioactive waste

Year	Quantity, kg	Basic radionuclides	Total activity, Bq
2011	924	Cd-109, Co-60, I-125, Ir-192, Th-232, U-238, Zn-65, Mn-54	1.68E+09
2012	1213	Cd-109, Co-60, Cs-137, H-3, I-125, Ir-192, Pu-238, Ra-226, Th-232, U-238	7.10E+11
2013	2912	C-14, Co-60, Cs-137, H-3, I-125, Ir-192, Pu-239, Ra-226, Th-232, U-238	9.18E+12

**Summary data of the inventory of Chernobyl originated
decontamination waste at DWDF-II**

Number and location	4 – Gomel Region 4 – Mogilev Region 1 – Brest Region
Total area, m ²	315 200
Total design capacity, m ³	244 465
Total waste activity against Cs-137, Bq	15.9×10 ¹¹
Total waste number, 10 ³ kg	238 154 (≈162 000 m ³)

A list of normative legal acts of the Republic of Belarus in the field of nuclear and radiation safety governing spent nuclear fuel and radioactive waste management

International Agreements of the Republic of Belarus

Conventions

1. Convention on Early Notification of a Nuclear Accident and Convention on Assistance in case of a Nuclear Accident or Radiological Emergency. Ratified by Decree of the Presidium of the Supreme Council of the Republic of Belarus of December 18, 1986 No. 1216-XI.

2. Convention on the Physical Protection of Nuclear Material. Resolution the Presidium of the Supreme Council of June 14, 1993 No. 2381-XII “On Legal Succession of the Republic of Belarus in respect of 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 November 11, 1997 No. 76-Z.

4. Convention on Nuclear Safety. Joined by Decree of the President of the Republic of Belarus of September 2, 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 Decree of the President of the Republic of Belarus of December 14, 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-Z.

7. Convention on Environmental Impact Assessment in a Transboundary Context. Adopted by Decree of the President of the Republic of Belarus of October 20, 2005 No. 487 “On Adoption of the Convention on Environmental Impact Assessment in a Transboundary Context by the Republic of Belarus”.

Agreements and Treaties

8. Treaty of the Government of the Republic of Belarus and the Government of the Republic of Poland on Early Notification of Nuclear Accidents and Cooperation in Radiation Safety of October 26, 1994.

9. Agreement between the Government of the Republic of Belarus and the Government of the Republic of Austria on Exchange of Information on 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 Radiation Safety of October 16, 2001.

11. Agreement on Mutual Aid in case of Accidents and other Emergency Situations at 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 Calamities, other Emergency Situations, as well as Liquidation of their Consequences of July 8, 2003.

13. Agreement on Exchange of Information on Natural and Man-Made Emergency Situations, Exchange of Information in Liquidation of their Consequences and Assistance to the Affected Communities of September 18, 2003. Signed by Member States of the Commonwealth of Independent States represented by the governments.

14. Treaty of the Government of the Republic of Belarus and the Government of the Republic of Lithuania on Cooperation in the area of Prevention of Catastrophes, Natural Calamities and Major Accidents, as well as Liquidation of their Consequences. Signed in Vilnius on 16.12.2003. 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 of the Government of the Republic of Belarus and the Government of the Republic of Lithuania on Cooperation in the area of Prevention of Catastrophes, Natural Calamities and Major Accidents, as well as Liquidation 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 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 Peaceful Use of Atomic Energy (2009)

17. Treaty on the Customs Code of the Customs Union. Signed in Minsk on 27.11.2009. Entered into force on 6.07.2010. As amended by the Protocol of 16.04.2010.

18. Resolution of the Commission of the Customs Union of April 16, 2010. No.240 on the Control of Movement of Sources of Ionizing Radiation. Adopted in Moscow on 16.04.2010.

19. Agreement between the Government of the Republic of Belarus and the Government of the Russian Federation on Cooperation in 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 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 Exchange of Information and Cooperation in Nuclear Safety and Radiation Protection (2013).

22. Agreement between the Government of the Republic of Belarus and the Government of the Russian Federation on Early Notification of a Nuclear Accident and Exchange of Information on Nuclear and Radiation Safety of December 13, 2013.

Legislative Acts

Codes and Laws of the Republic of Belarus

23. Law of the Republic of Belarus of January 5, 1998 No.122-Z (as amended of 04.01.2014) “On Radiation Safety of Population”.

24. Law of the Republic of Belarus of January 6, 1998 No. 130-Z (as amended of 01.11.2004) “On Export Control”.

25. Law of the Republic of Belarus of May 5, 1998 No. 141-Z (as amended of 10.07.2012) “On Protection of Population and Territories against Natural and Man-Made Emergency Situations”.

26. Law of the Republic of Belarus of January 5, 2004 No. 262-Z (as amended of 07.01.2012) “On Technical Rating and Standardization”.

27. Law of the Republic of Belarus of July 30, 2008 No. 426-3 (as amended of 22.12.2011 г.) “On the Use of Atomic Energy”.

28. Law of the Republic of Belarus of November 9, 2009 No. 53-Z “On Amendments and Additions to Certain Laws of the Republic of Belarus on the Use of Atomic Energy”.

29. Law of the Republic of Belarus of November 9, 2009 No. 54-Z “On State Environmental Review”.

30. Law of the Republic of Belarus of January 7, 2012 No. 340-Z “On Sanitary and Epidemiological Well-Being of Population”.

31. Law of the Republic of Belarus of May 26, 2012 No. 385-Z “On Legal Status of Territories Contaminated by Radiation as a result of Chernobyl NPP Catastrophe”.

32. Code of the Republic of Belarus of April 21, 2003 No. 194-Z (as amended of 04.01.2014) on Administrative Offences.

33. The Criminal Code of the Republic of Belarus of July 9, 1999 No. 275-Z (as amended of 12.07.2013).

Decrees of the President of the Republic of Belarus

34. Decree of the President of the Republic of Belarus of December 29, 2006 No.756 “On Certain Issues of the Ministry for Emergency Situations”.

35. Decree of the President of the Republic of Belarus of November 12, 2007 No. 565 “On Certain Measures for Construction of the Nuclear Power Plant”.

36. Decree of the President of the Republic of Belarus of October 15, 2007 No. 502 “On Bans and Restrictions for Movement of Certain Types of Products across the State Border of the Republic of Belarus”.

37. Decree of the President of the Republic of Belarus of October 16, 2009 No.510 “On Improvement of Control (Supervisory) Activity in the Republic of

Belarus”.

38. Decree of the President of the Republic of Belarus of May 28, 2010 No. 279 “On Determination of the State Body Responsible for the Implementation of Obligations under Certain International Agreements”.

39. Decree of the President of the Republic of Belarus of September 1, 2010 No. 450 “On Licensing of Certain Types of Activity”.

40. Decree of the President of the Republic of Belarus of October 8, 2010 No. 521 “On Arrangement of Conditions for the Provision of Technical Assistance by the U.S. Government in Export and Exchange of Nuclear Fuel”.

41. Decree of the President of the Republic of Belarus of March 29, 2011 No. 124 “On Measures for Implementation of International Agreements in Civil Responsibility for Nuclear Damage”.

42. Decree of the President of the Republic of Belarus of September 15, 2011 No. 418 “On Siting and Design of a Nuclear Power Plant in the Republic of Belarus”.

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

Normative Legal Acts of the Government of the Republic of Belarus

44. Resolution of the Council of Ministers of the Republic of Belarus of April 10, 2001 No. 495 “On Approval of Regulation on State System for Prevention and Liquidation of Emergency Situations.

45. Resolution of the Council of Ministers of May 17, 2004 No. 576 “On Approval of Regulation on the Procedure for Radiation Monitoring and Use of its Data within the National System for the Environmental Monitoring in the Republic of Belarus”.

46. Resolution of the Council of Ministers of June 24, 2006 No. 797 “On Radiation and Hygienic Passport of a User of Sources of Ionizing Radiation, its Keeping Procedure and Applications and Annulment of Resolution of the Council of Ministers of the Republic of Belarus of March 23, 1999 No. 391”.

47. Resolution of the Council of Ministers of September 10, 2008 No. 1329 “On Approval of the State Program of Staff Training for Nuclear Energy Industry of the Republic of Belarus for 2008–2020”.

48. Resolution of the Council of Ministers of September 23, 2008 No. 1397 “On Certain Issues of the Procedure for Movement of Certain Types of Products across the State Border of the Republic of Belarus”.

49. Resolution of the Council of Ministers of December 31, 2008 No. 2056 “On Certain Issues of the Conduct of State Supervision in Industrial Safety, Safety of Dangerous Goods Transportation, Nuclear and Radiation Safety Assurance”.

50. Resolution of the Council of Ministers of April 2, 2009 No. 411 “On Approval of Regulation on the Procedure for Agreement, Establishment and Designation of Boundary of Control Area, Observation Area of a Nuclear Facility and (or) Storage Facility and Requirements to their Protection and Use”.

51. Resolution of the Council of Ministers of April 30, 2009 No. 560 “On Approval of Regulation on the Procedure of Interaction of Republican Regulatory

Bodies, other State Bodies and Organizations in the event of Detection of Sources of Ionizing Radiation, as well as of their Arrest at the State Border of the Republic of Belarus”.

52. Resolution of the Council of Ministers of April 30, 2009 No. 562 “On Approval of Regulation on the Procedure for State Registration of Sources of Ionizing Radiation and Unified State System of Accounting and Control of Sources of Ionizing Radiation”.

53. Resolution of the Council of Ministers of May 4, 2009 No. 574 “On Certain Issues of Works on the Use of Atomic Energy”.

54. Resolution of the Council of Ministers of August 28, 2009 No. 1116 “On Approval of State Program “Scientific Support of Nuclear Energy Industry Development in the Republic of Belarus for 2009–2010 and for a period up to 2020”.

55. Resolution of the Council of Ministers of August 27, 2010 No. 1242 “On Approval of Regulation on Terms and Procedure for Emergency Plans Development”.

56. Resolution of the Council of Ministers of December 7, 2010 No. 1781 “On Approval of Regulation on the Procedure for Review of Documents that Justify Nuclear and Radiation Safety Assurance in the Use of Nuclear Energy and Sources of Ionizing Radiation”.

57. Resolution of the Council of Ministers of December 3, 2012 No. 1109 “On Approval of Regulation on the Procedure for Issuing Licenses for Disposal of Radioactive Waste Contaminated by Radionuclides as a result of the Chernobyl NPP Catastrophe, as well as other Waste, Products, Materials and other Substances Contaminated by Radionuclides as a result of the Chernobyl NPP Catastrophe below the Level Established by Normative Legal Acts, including by Technical Normative Legal Acts, with respect to Radioactive Waste”.

58. Resolution of the Council of Ministers of March 17, 2014 No. 224 “On Approval of Regulation on the Procedure for State System of Accounting and Control of Nuclear Materials of the Republic of Belarus”.

Normative Legal Acts of the Ministries and other Republican Regulatory Bodies

59. Resolution of MES of the Republic of Belarus of April 30, 2009 No.20 “On Approval of the Form of Accompanying Certificate for Radioactive Waste Transportation and Instruction on Execution of Accompanying Certificate for Radioactive Waste Transportation”.

60. Resolution of MES of the Republic of Belarus of April 30, 2009 No.21 “On Approval of Instruction on the Procedure for Development, Agreement and Approval of Radioactive Waste Management Scheme”.

61. Resolution of MES of the Republic of Belarus of November 30, 2010 No. 52 “On Licensing of Activity in the field of Industrial Safety, Use of Atomic Energy and Sources of Ionizing Radiation, and Activity Related to Control of Radiation Contamination, Activity on Fire Safety Assurance”.

62. Resolution of MES of the Republic of Belarus of November 30, 2010 No. 54 “On Approval of Instruction on the Procedure of Admission to Safety Review Conduct in the Use of Atomic Energy and Sources of Ionizing Radiation”.

63. Resolution of MES of the Republic of Belarus of November 30, 2010 No. 55 “On Approval of Instruction on the Procedure of Training, Instructing and Evaluation of Knowledge of Normative Legal Acts, including Technical Normative Legal Acts, in Nuclear and Radiation Safety Assurance”.

Technical Normative Legal Acts of the Ministries and other Republican Regulatory Bodies

Norms and Rules

64. “Rules for Nuclear Safety of Critical Test Facilities”, approved by Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 30, 2006 No. 72.

65. “Rules for Nuclear Safety of Subcritical Test Facilities”, approved by Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 30, 2006 No. 72.

66. “Rules of Safety Assurance of Nuclear Research Facilities”, approved by Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 30, 2006 No. 72.

67. “Rules of Safety Assurance for Nuclear Fuel Storage and Transportation at the Complexes of Nuclear Fuel Storage and Management Systems”, approved by Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 30, 2006 No. 72.

68. “Rules of Safety Assurance for Nuclear Fuel Storage and Transportation at Nuclear Energy Industry Facilities”, approved by Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 30, 2006 No. 72.

69. “Norms and Rules for Nuclear and Radiation Safety Assurance “Safety of Radioactive Waste Management. General Provisions”, approved by Resolution of the Ministry for Emergency Situations of the Republic of Belarus of September 28, 2010 No. 47.

70. “Rules for Safety Assurance of Dangerous Goods Transportation by Road in the Republic of Belarus”, approved by Resolution of the Ministry for Emergency Situations of the Republic of Belarus of December 8, 2010 No. 61.

71. “Norms and Rules for Nuclear and Radiation Safety Assurance “Requirements to Structure and Content of Radioactive Waste Management Facilities Safety Report”, approved by Resolution of MES of the Republic of Belarus of December 13, 2010 No. 64.

72. “Norms and Rules for Nuclear and Radiation Safety Assurance “Requirements to Structure and Content of a Radiation Facility Safety Report”, approved by Resolution of MES of the Republic of Belarus of December 30, 2011 No. 73.

73. Norms and Rules for Nuclear and Radiation Safety Assurance “Disposal of Radioactive Waste. Principles, Criteria and General Safety Requirements”, approved by Resolution of MES of the Republic of Belarus of January 20, 2012 No. 7.

Sanitary Norms and Rules

74. Resolution of the Chief State Medical Officer of the Republic of Belarus of November 23, 2004 No. 121 “On Approval of Sanitary Rules for the Management of Decontamination Waste Resulting from Works on Elimination of Consequences of Chernobyl NPP Catastrophe (SPOOD-2004)” 2.6.6.8-8-2004.

75. Resolution of the Chief State Medical Officer of the Republic of Belarus of April 7, 2005 No. 45 “On Approval of Sanitary Rules for Radioactive Waste Management SPORO-2005” 2.6.6.11-7-2005.

76. Resolution of the Chief State Medical Officer of the Republic of Belarus of December 30, 2005 No. 284 “On Approval of Sanitary Norms and Rules 2.6.1.13-60-2005 “Hygienic Requirements for Assurance of Radiation Safety of Personnel and Population during Radioactive Materials (Substances) Transportation”.

77. Resolution of the Ministry of Health of the Republic of Belarus of March 31, 2010 No. 39 “On Approval of Sanitary Norms, Rules and Hygienic Standards “Hygienic Requirements to Design and Operation of Nuclear Power Plants”.

78. Resolution of the Ministry of Health of the Republic of Belarus of December 28, 2012 No. 213 “On Approval of Sanitary Norms and Rules “Radiation Safety Requirements”.

79. Resolution of the Ministry of Health of the Republic of Belarus of December 28, 2012 No. 213 “On Approval of Hygienic Standard “Criteria for Radiation Impact Assessment”.

80. Resolution of the Ministry of Health of the Republic of Belarus of 31.12.2013 No.137 “On Approval of Sanitary Norms and Rules “Requirements to Assurance of Radiation Safety of Personnel and Population in the Use of Nuclear Energy Facilities and Sources of Ionizing Radiation”.

Technical Codes of Practice

81. TCP 113-2007 (02300) “Procedure for Survey of Territories, Facilities and Equipment for Decontamination Works”, approved and implemented by Order of MES of the Republic of Belarus of December 10, 2007 No. 168.

82. TCP 144-2008 (02300) “Organization and Performance of Decontamination of Territories, Facilities and Equipment, approved and implemented by Order of MES of the Republic of Belarus of December 2, 2008 No. 140.

83. TCP 294-2010 (02300) “Requirements to the Content of Safety Assessment Report of a Nuclear Power Plant with Reactors of VVER Type”, approved by Resolution of MES of the Republic of Belarus of December 27, 2010 No. 68.

84. TCP 304-2011 (02300) “Monitoring and Prediction of Emergency Situations. General Provisions. Procedure for the Operation of System of Monitoring and Prediction of Emergency Situations”, approved by Resolution of MES of the Republic of Belarus of April 8, 2011 No.24.

85. TCP 356-2011 (02300) “System of Physical Protection of Nuclear Materials and Nuclear Facilities. Instruction for Design Arrangement”, approved by Resolution of MES of the Republic of Belarus of October 31, 2011 No. 55.

86. TCP 357-2011 (02300) “Basic Rules for Safety and Physical Protection of Nuclear Materials Transportation”, approved by Resolution of MES of the Republic of Belarus of October 31, 2011 No. 55.

87. TCP 358-2011 (02300) “System of Physical Protection of Nuclear Materials and Nuclear Facilities. Requirements to Design Solutions”, approved by Resolution of MES of the Republic of Belarus of October 31, 2011 No. 55.

88. TCP 389-2012 “Rules for Physical Protection of Sources of Ionizing Radiation”, approved by Resolution of MES of the Republic of Belarus, MIA, SSC of May 18, 2012 No. 31/142/20.

89. TCP 426-2012 (02300) “Rules for Physical Protection of Nuclear Materials and Nuclear Facilities during Use and Storage”, approved by Resolution of MES of the Republic of Belarus of November 29, 2012 No. 69.

90. TCP 501-2013 “Rules and Procedure for Preparation of Safety Assessment Report of Nuclear Materials Storage Facilities”, approved by Resolution of MES of the Republic of Belarus of November 28, 2013 No. 56.

91. TCP 503-2013 “Rules for Siting of Nuclear Materials and Radioactive Substances Storage Facilities”, approved by Resolution of MES of the Republic of Belarus of November 28, 2013 No. 57.

92. TCP 504-2013 (02300) “Arrangement and Performance of Facilities Liquidation on the Territories Contaminated as a result of the Chernobyl NPP Catastrophe”, approved by Resolution of MES of the Republic of Belarus of December 17, 2013 No. 69.

93. TCP 505-2013 “Procedure for Interaction in Systems of Physical Protection of Nuclear Facilities”, approved by Resolution of MES of the Republic of Belarus, MIA, SSC of December 19, 2013 No. 70/553/556.

94. TCP 531-2014 “Procedure for Analysis of Nuclear Facilities Vulnerability and Efficiency Assessment of the Physical Protection System”, approved by Resolution of MES and MIA of April 7, 2014 No. 8/110.

95. TCP 533-2014 “Procedure for Reporting Materials on Accounting and Control of Nuclear Materials Submission to an Authorized Governmental Body”, approved by Resolution of MES of April 17, 2014 No. 13.

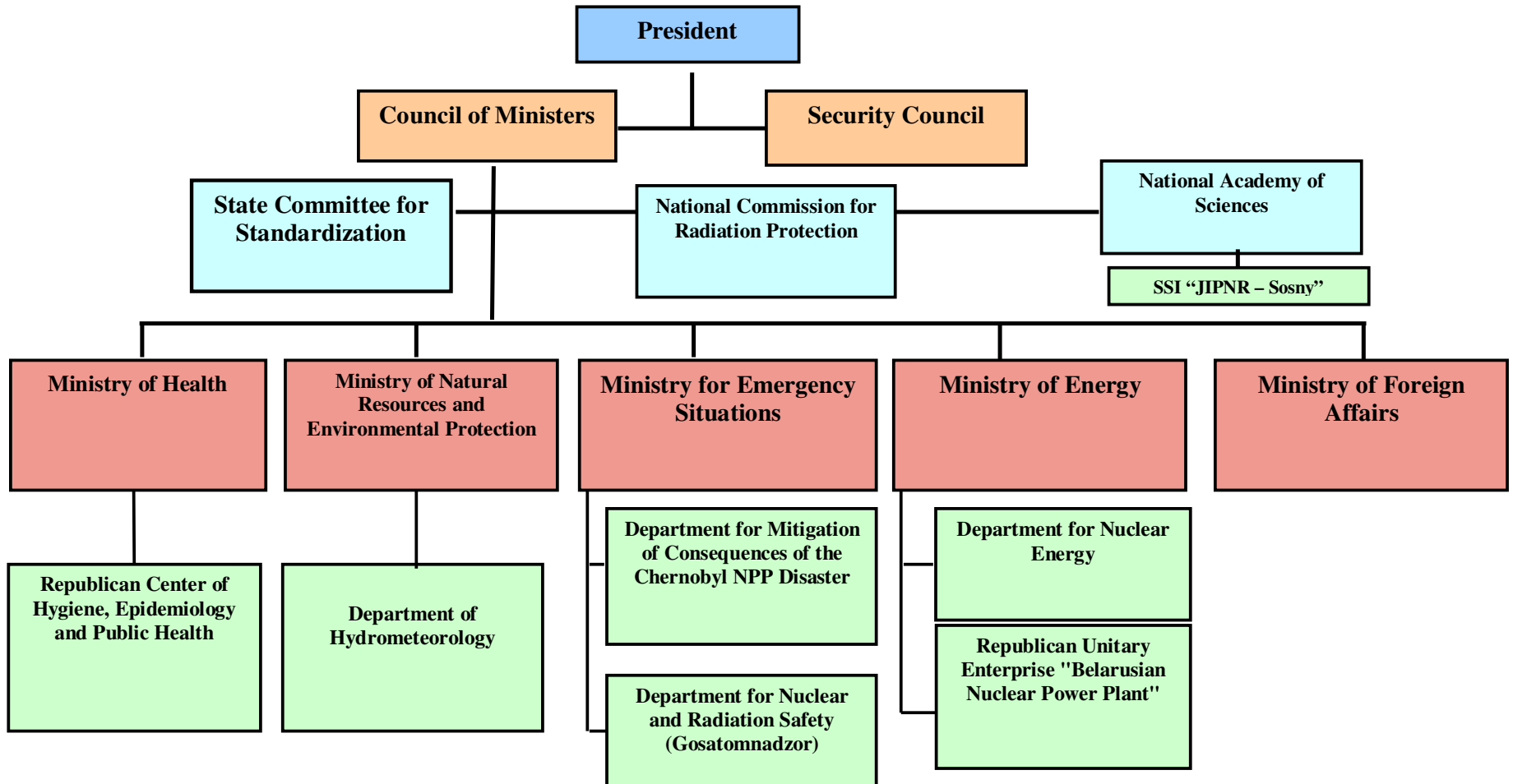
Articles of the Criminal Code of the Republic of Belarus stating liability for violations in radiation safety

Article	Content
268	Concealment or deliberate distortion of data on the environmental pollution
278	Violation of safety rules for the management of genetically modified organisms, environmentally hazardous substances and waste
301	Violation of production and technical discipline rules or safety rules at nuclear facilities
322	Illegal acquisition, storage, use, marketing or destruction of radioactive waste
323	Theft of radioactive waste
324	Threat of hazardous use of radioactive materials
325	Violation of rules for radioactive materials management
326	Violation of radiation control rules

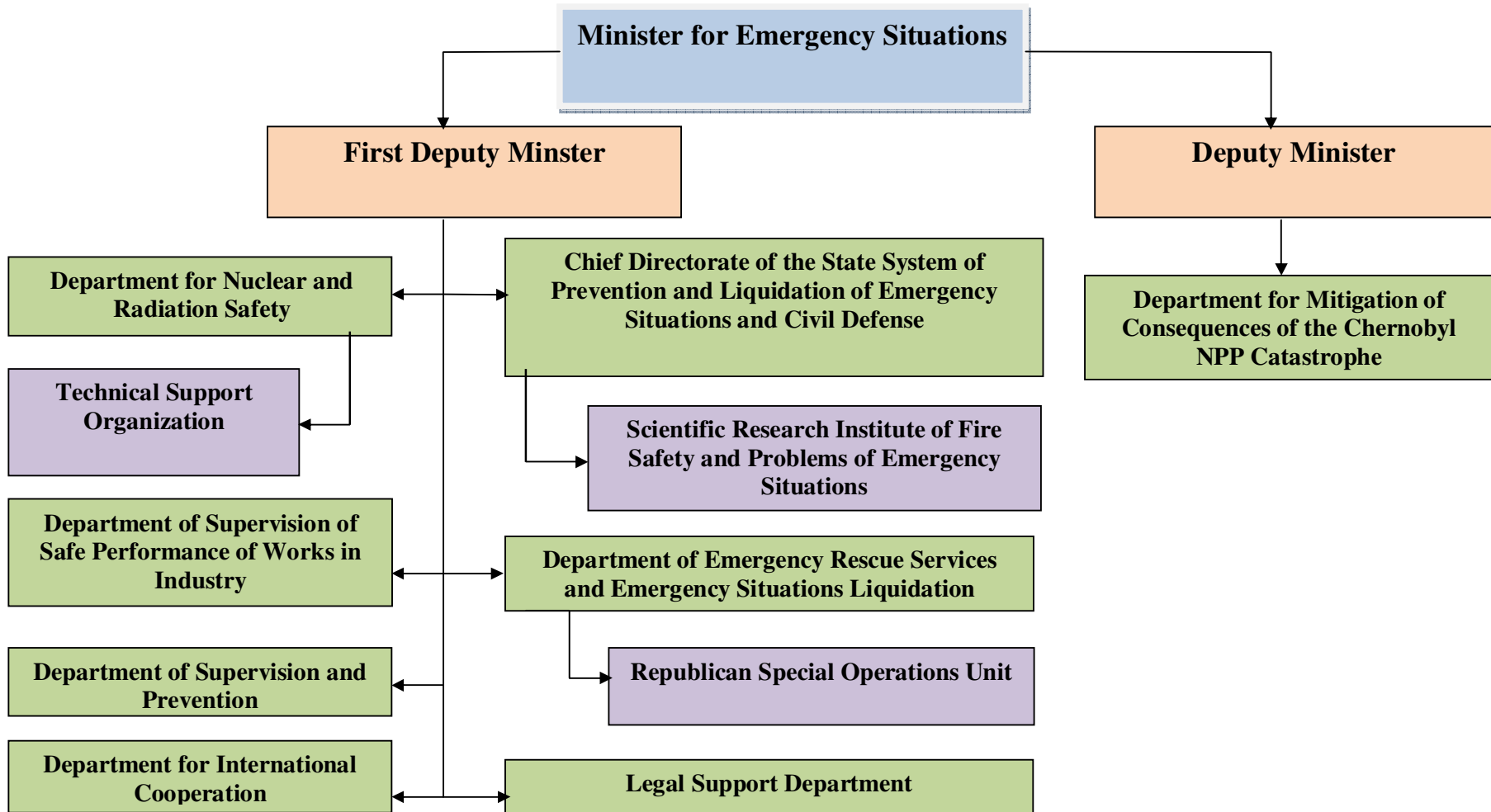
Articles of the Code of the Republic of Belarus on Administrative Offences stating liability for violations against human health

Article	Content
16.3	Violation of requirements of radiation safety regime in areas contaminated by radiation
16.4	Violation of radiation control rules
16.5	Use of radiation equipment which failed to pass a technical control or which is in bad order with the purpose of diagnosing or treatment
16.6	Violation of normative legal acts on nuclear and radiation safety assurance

State bodies and organizations for nuclear and radiation safety assurance



Structure of the Ministry for Emergency Situations



Structure of the Department for Nuclear and Radiation Safety

