

Managing legacy sites in Belarus

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**INTERNATIONAL WORKING FORUM ON REGULATORY
SUPERVISION OF LEGACY SITES**

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Legacy site. What does it mean?

In Belarus

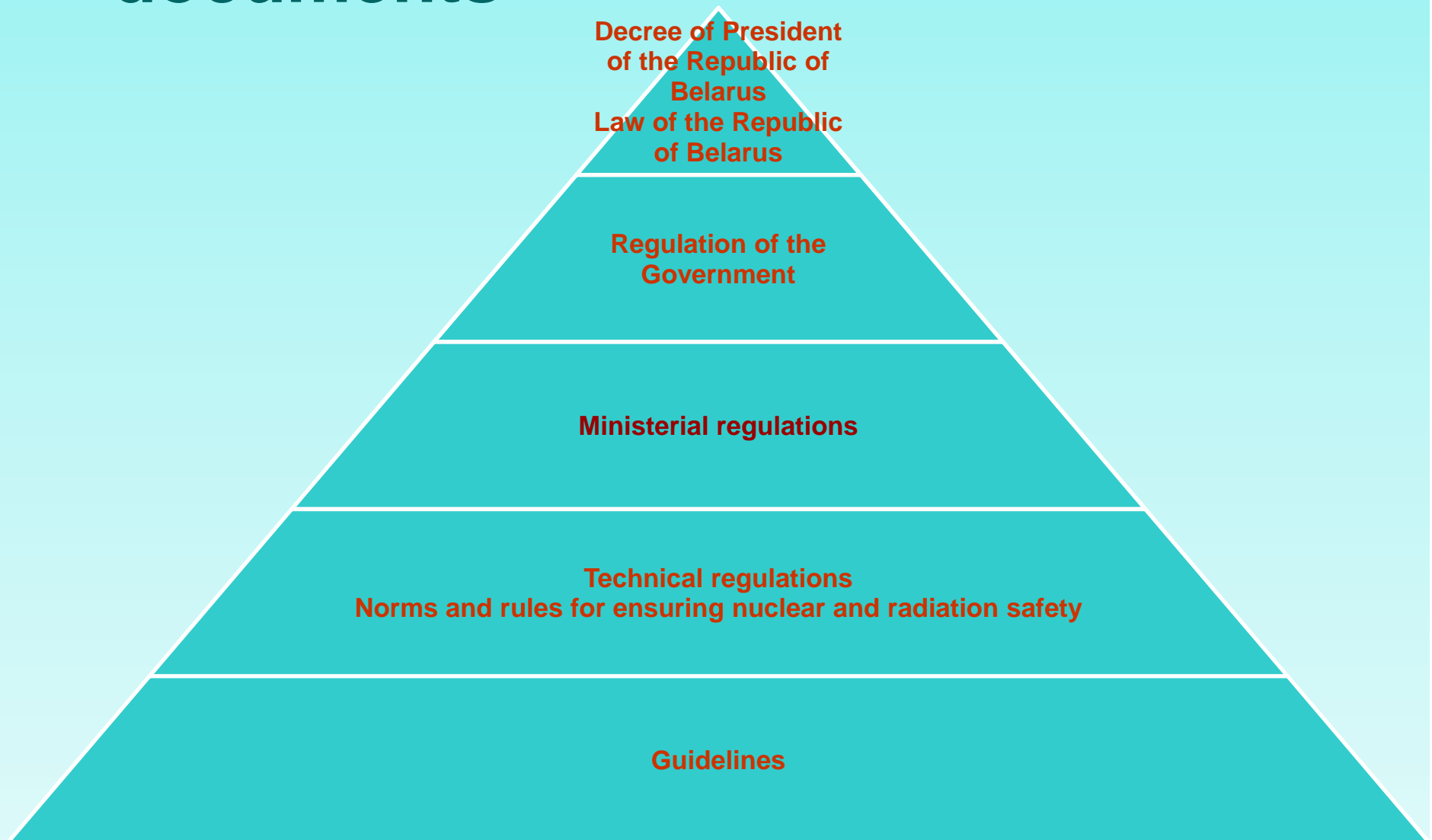
- Different sites contaminated in result of Chernobyl disaster
- Former military facilities

Legal framework:

Legislation

Infrastructure

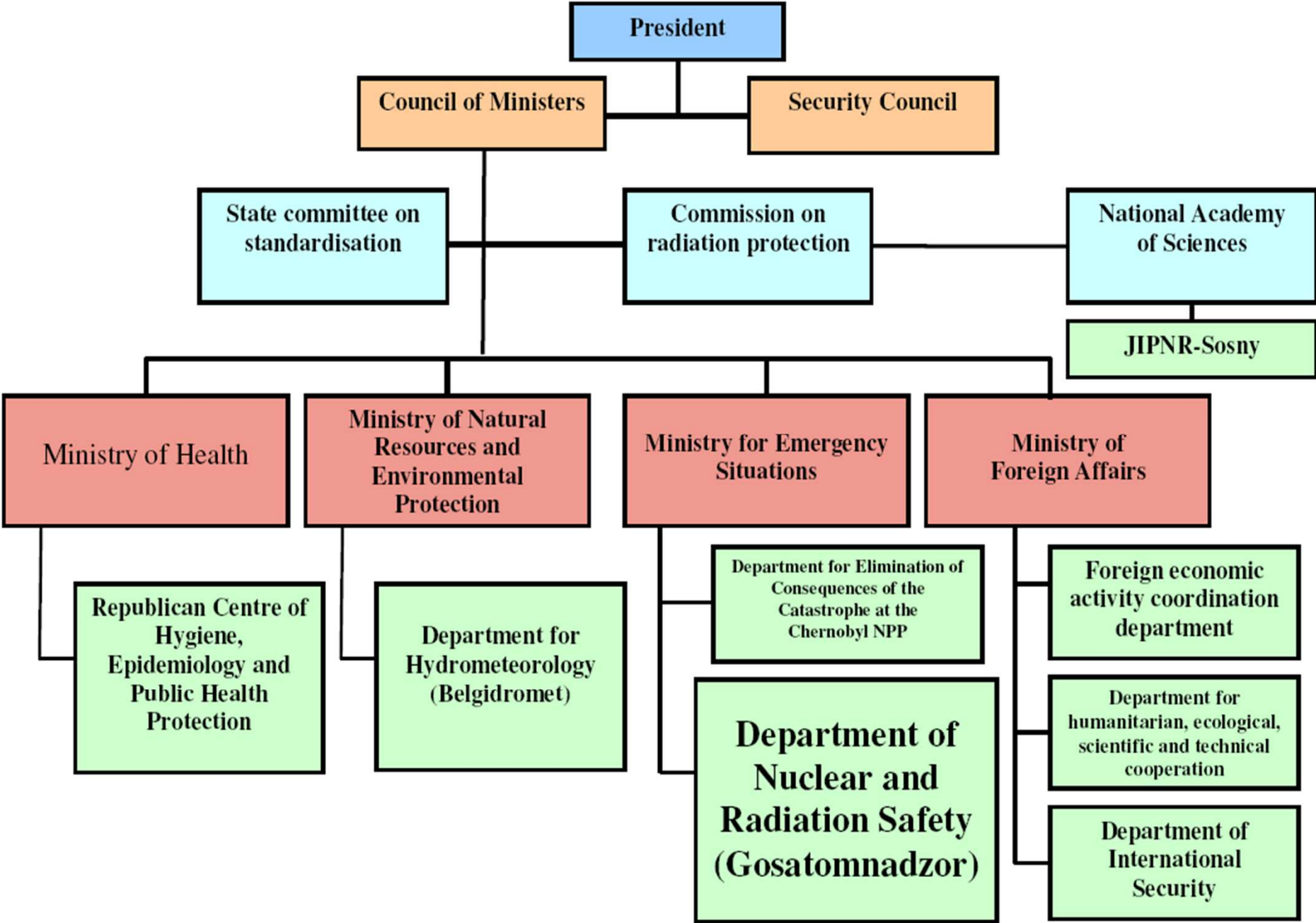
The classical pyramid of normative documents



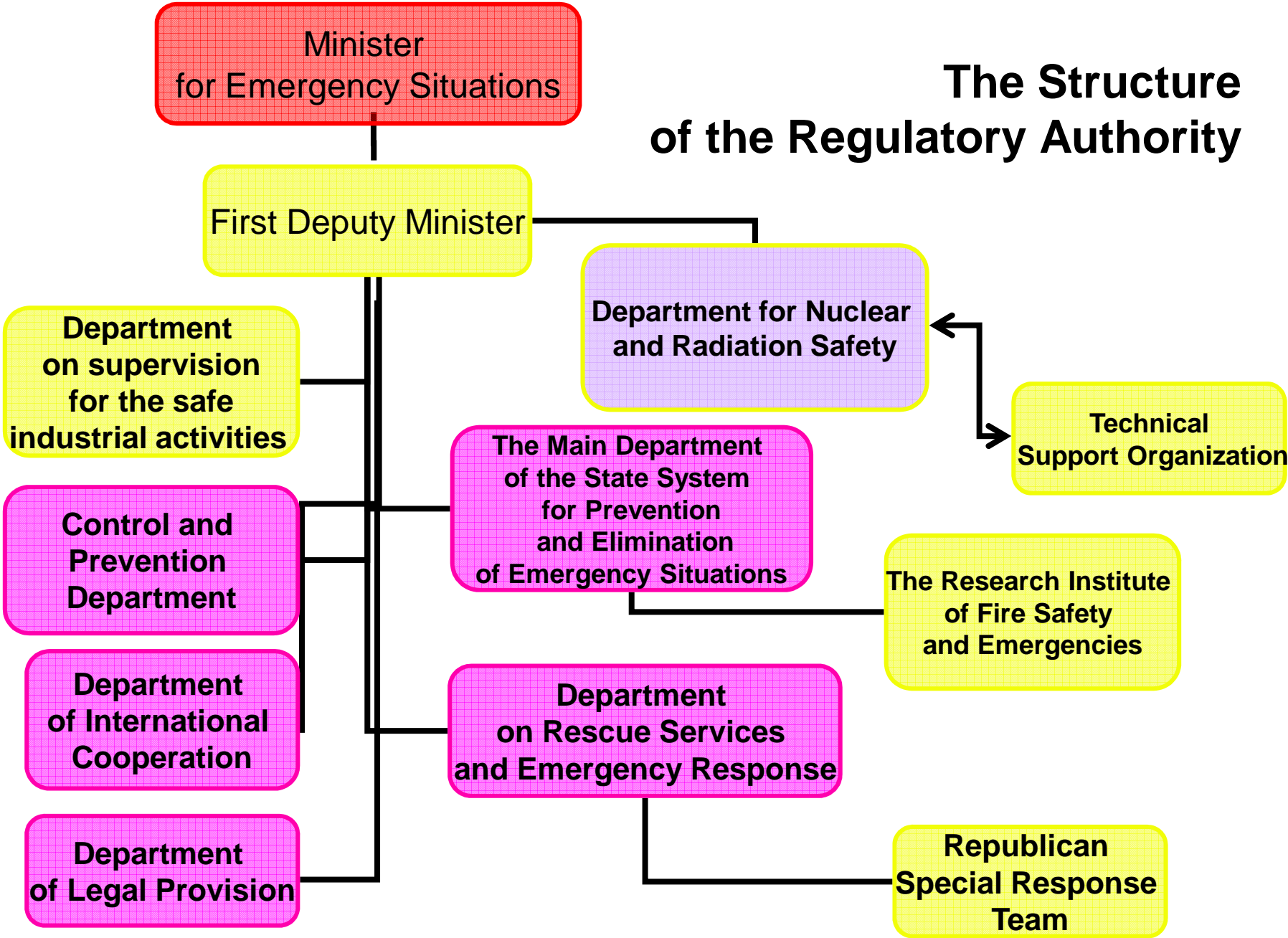
Law of the Republic of Belarus

- On Legal Status of the Territories Suffered from Radioactive Contamination Due to the Accident at the Chernobyl Nuclear Power Plant (adopted in 1991)
- On radiation safety of public (adopted in 1998, amended 2008)
- On the Use of Atomic Energy (adopted in 2008)

State Authorities Responsible for Radiation Safety



The Structure of the Regulatory Authority



G Chairman **or**

Chairman

Financial sector

Division on development of regulatory documents

Licensing and examination sector

Radiation Safety Department

Inspection

Nuclear Safety Department

Division on Radiation Safety Supervision

Sector on Radiation Safety Regulation

Division on Nuclear Safety Assessment

Division on NPP Systems and Equipment safety

Radioactive sources disposal facilities (DF) at the former deployment sites of the USSR military troops

- Such DF are the facilities, which do not have the official status within the framework of legislation, because there are no design documentation and no data on the placed ionizing radiation sources. Besides that, the facilities safety is not provided it's duly the organizational and technical surveillance and monitoring. The majority of the discovered DFs have not the proper physical protection endangering for unauthorized access to ionizing radiation sources.

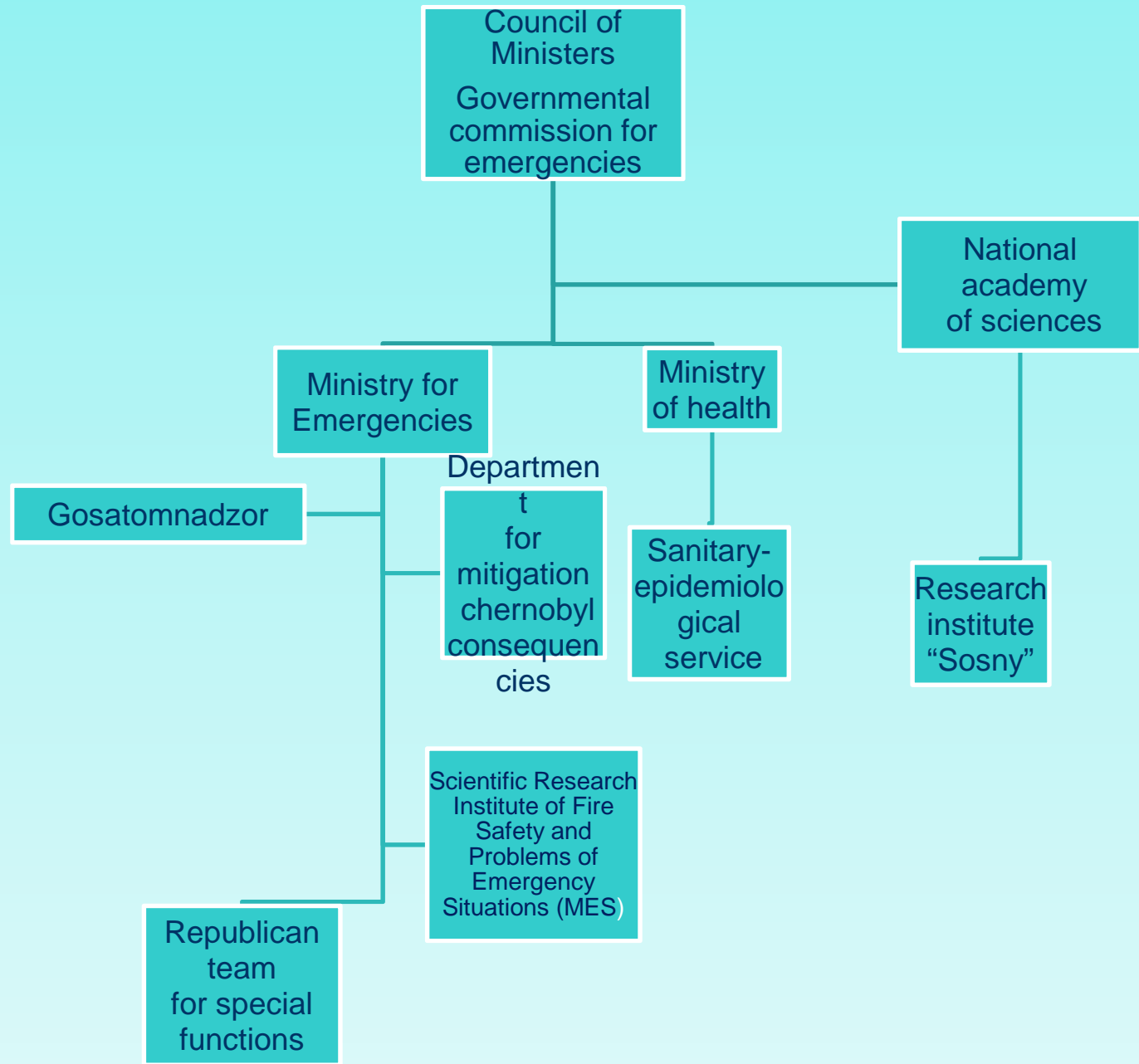
- In order to decrease radiological risks and to adjust the territories in accordance with the requirements of radiation safety, as well as the provision of necessary physical protection of ionizing radiation sources, in Republic of Belarus there is realized activities on searching and discovering of disposal facilities for radioactive waste, generated in places of the former deployment of the USSR military troops.

- Technical project BYE/3/002 “Minimization of the Radioecological Threat from the Disposal of Radioactive Waste at Former Soviet Union Military Sites” was launched.

Organization of works

Parties are involved:

- Ministry for emergencies
- Gosatomnadzor
- Republican team for special functions (ROSN)
- Scientific Research Institute of Fire Safety and Problems of Emergency Situations (MES)
- Research institute “Sosny” as TSO
- Local authorities
- Sanitary-epidemiological service



	Ministry for emergencies	Gosatomnadzor	ROSN	Institute of Fire Safety	Research institute "Sosny"	Sanitary-epidemiological service	Local authorities
search		+			+		+
assessment		+		+	+		
Decision making	+	+			+		
Methodology development		+	+	+	+	+	
liquidation			+				
supervision		+				+	
financing	+						

- About 30 known sites of the former deployment of strategic military troops, which may have disposal facilities of decontamination waste. The present result of the search is 12 such DFs.

- As of 2010, 12 of such facilities have been monitored:
- in Brest region - DF "Shereshevo", "Zamshany-1", "Zamshany-2";
- in Vitebsk region - DF "Kursevichi", "Kosteni", "Farinovo";
- in Gomel region - DF "Gomel-30";
- in Grodno region - DF "Gezgaly", "Minojty", "Volkovtsy", "Vasyuki";
- in Minsk region - DF "Kolosoovo".

- In order to investigate the spread (diffusion) of contamination there were drilled wells at the site both in the immediate vicinity and at varying distances far from the facility
- According to the results of preliminary radiometric and radiochemical studies, there is no essential Cs-137 and Sr-90 pollution of the ground near the disposal facility of radioactive waste and water in the wells.

DF "Kolosofo"

- According to the order of the Commission for Emergency Situations under the Council of Ministers of the Republic of Belarus in November 2008, the "Republican special response team" (abbrv. in Russian – ROSN) of the Ministry for Emergency Situations fulfilled a complex of works for liquidation of radioactive waste disposal facilities "Kolosofo".

DF "Kolosofo"

- The regulation of woks was agreed with Gosatomnadzor, the Minsk Regional Center for Hygiene, Epidemiology and Public Health, Ministry of Defense, the "Ekores" storage facility.

Upper part of DF “Kolosovo”







DF "Kolosofo"

- As a result of the liquidation works, 23 containers with radionuclide sources (19 Cs-137 sources and 4 Co-60 sources) were extracted and transferred to "Ekores" storage facility.





DF “Gomel-30”

- The “Gomel-30” radioactive waste disposal facility is located in Retchitsa district of Gomel region. It was commissioned in 1964 at deployment site of military troops for the disposal of spent radionuclide sources of man-made origin.

Visit on site Gomel-30 (April 2010)



DF “Gomel-30”

- The decision to carry out the liquidation DF "Gomel-30" in two stages was approved by the Commission on Emergency Situations of the Council of Ministers of the Republic of Belarus:

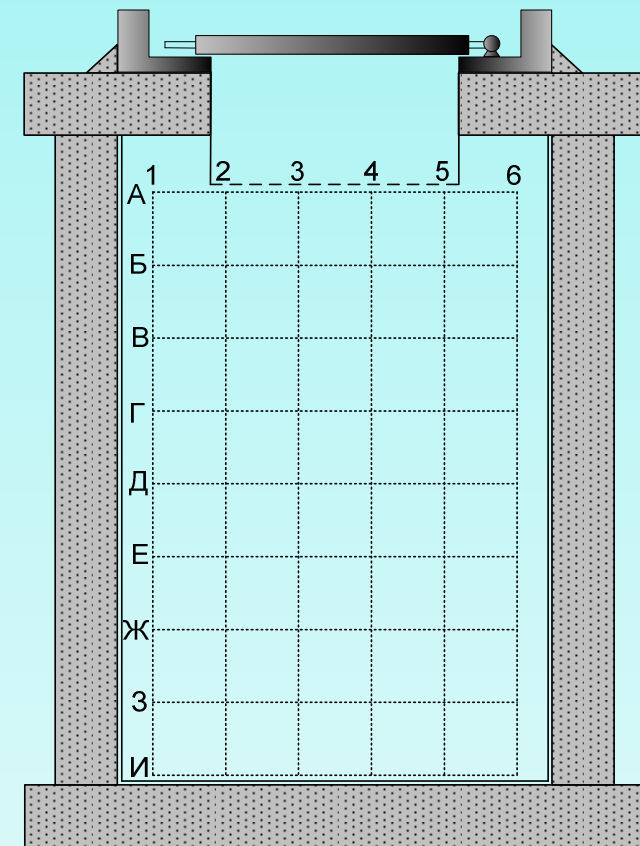
DF “Gomel-30”

- I stage – carrying out of safety assessment for DF;
- II stage – development of the technology and the procedure of liquidation of the facility, process of works, taking into account the results of safety expertise for DF.

- Within the framework of the I stage of works performance, the safety assessment for DF "Gomel-30" was carried out by Scientific Research Institute of Fire Safety and Problems of Emergency Situations (MES) with the assistance of the Republican Special Response Team (MES) as well as the Republican Center of Radiation Control and Environmental Monitoring of the Ministry of Natural Resources and Environmental Protection in October-December, 2010.

- The works were carried out according to the procedures of the first stage of works on "Gomel-30" DF liquidation. The procedures were approved by Gosatomnadzor, the Republican Sanitary and Epidemiological Station of the Ministry of Health, PSI "JIPNR - Sosny" of the National Academy of Sciences of Belarus, "Ekores", as well as the administration of the organization, where the facility is located.

Marking of DF side surface

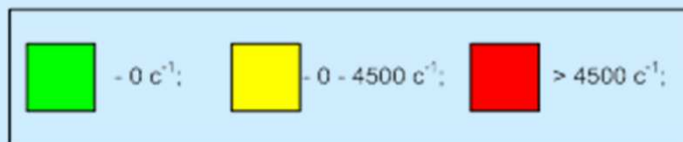
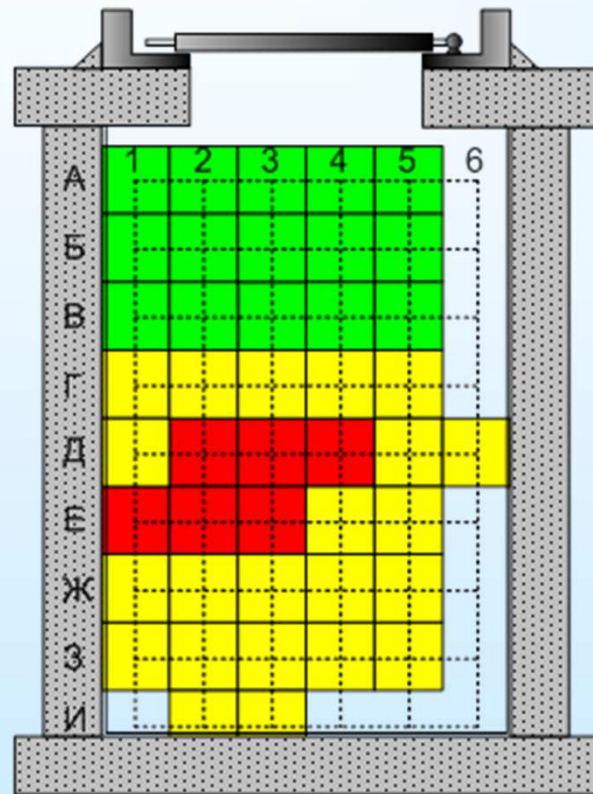


The series of spectrometric measurements was conducted

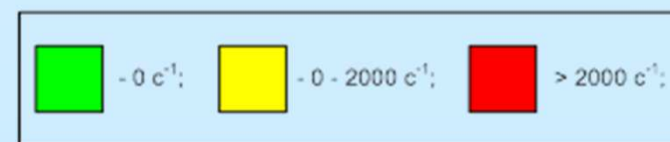
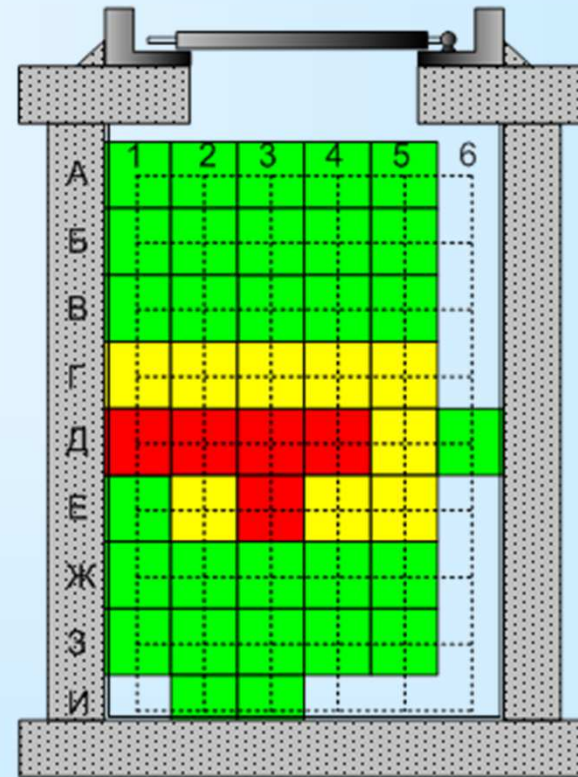


Distribution of emission intensity

Co-60

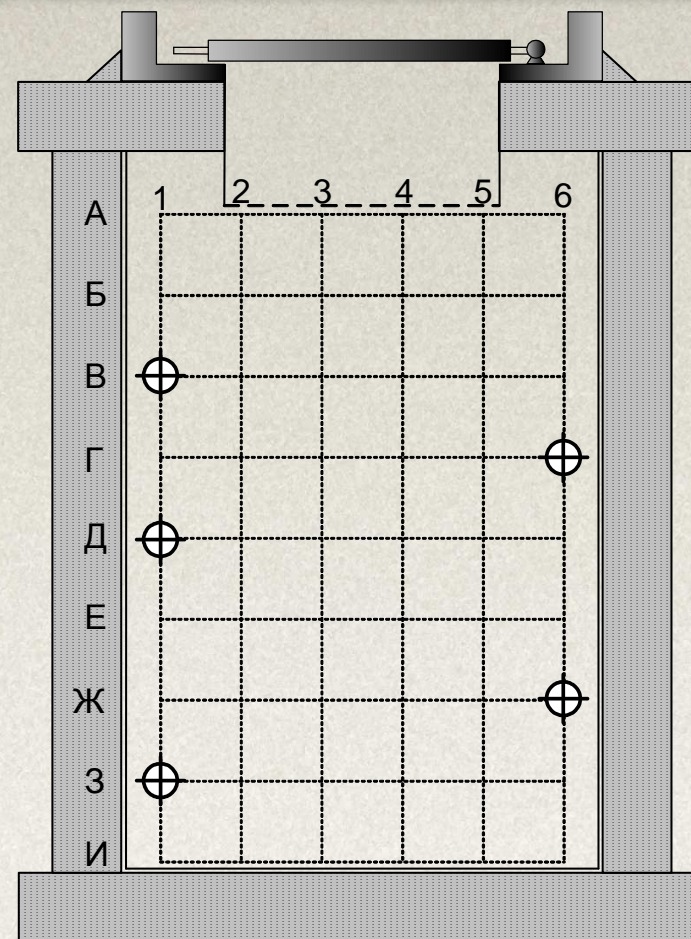


Cs-137





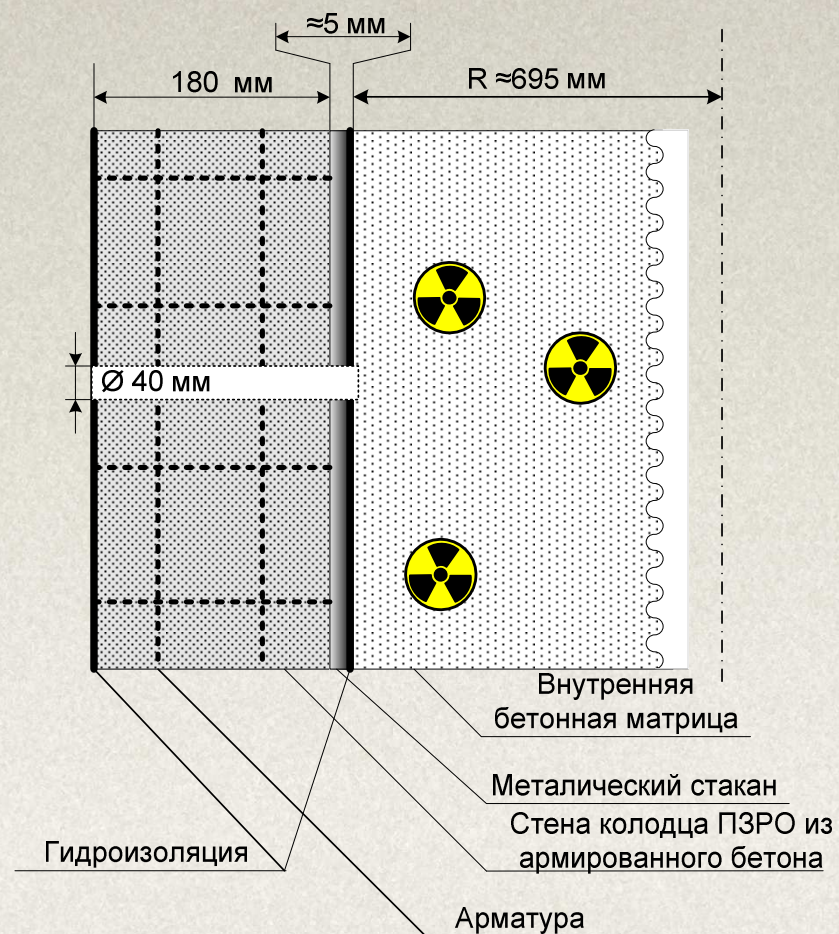
Drilling of holes



The scheme of drilling



The drilled hole



Scheme of cross-section of wall



Plugging of bored holes



Renewal of insulation

- The outer diameter of the facility is 1,8 m, the height is 2,5 m. The building structures of the walls, basis slab and top coating are made of 150 mm thick precast concrete elements. The basis slab and walls have metal 4 mm thick cladding of steel. There are bitumen insulations made in 2 layers inside on the metal surface and outside the facility on the concrete surface. There is a clay waterproof barrier around the perimeter of the external contour of the facility.

- As the preliminary estimations, the volume of the column of the DF well, excluding the top and bottom plates, is 4,863 m³, approximate weight is 12 tons.

The results of carrying out of the first stage of "Gomel-30" DF liquidation allowed to make the following issues:

- 1. The "Gomel-30" DF design, in general, corresponds to the standard design of repository № 62-II-04 (the height is 2,4 m from the ground, the diameter of the well is 1,76 m).
- 2. The radionuclide composition of the disposed sources includes Cs-137 and Co-60 radioactive isotopes.

The results of carrying out of the first stage of "Gomel-30" DF liquidation allowed to make the following issues:

- 3. Currently the condition of the constructional materials of the DF radiation protection provides necessary tightness and protection from radionuclide penetration into the environment.

The results of carrying out of the first stage of "Gomel-30" DF liquidation allowed to make the following issues:

- 4. Currently there is no threat of the irradiation of the population and workers of nearby facilities above the established dose limits, providing that the organization of necessary physical protection of the DF is provided.

The results of carrying out of the first stage of "Gomel-30" DF liquidation allowed to make the following issues:

- 5. The technical condition and constructive scheme of the DF demonstrate the ability of the structure to resist dismounting and transport loads.

- On the basis of the above mentioned data there was issued, as reasonable, to develop the technology and procedure of the liquidation of temporary disposal facility of radioactive waste "Gomel-30" by the direct removal for the long-term storage at "Ekores" of the whole well column with disposal radioactive sources without fragmentation.

- In accordance with the decision of the Commission on Emergency Situations of the Council of Ministers of Belarus the second stage of works on DF "Gomel-30" liquidation is planned to be performed after the reconstruction of "Ekores". Currently, placing DFDW "Gomel-30" at "Ekores" is not possible with regard to the existing restrictions on weight and volume of accepted radioactive waste.

Planned activity

- Fulfilment of 2-nd stage of liquidation DF "Gomel-30";
- to continue work on the search and inspection of DFs;
- provision of the long-term safety of these facilities;
- perfection of the legislative basis

THANK YOU FOR YOUR ATTENTION