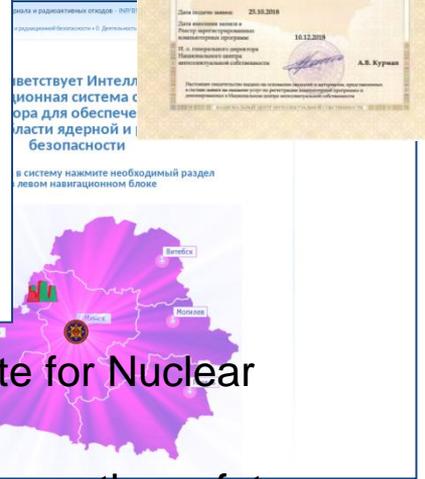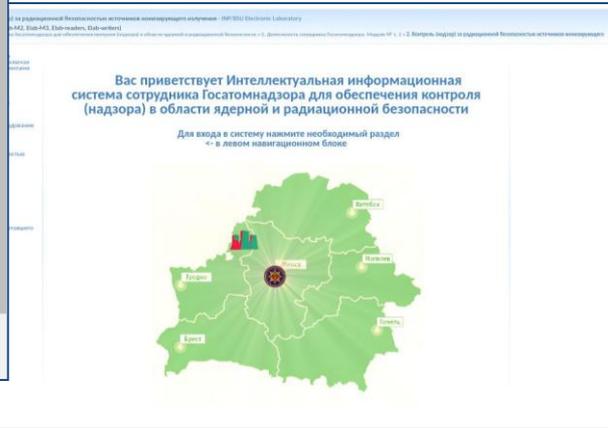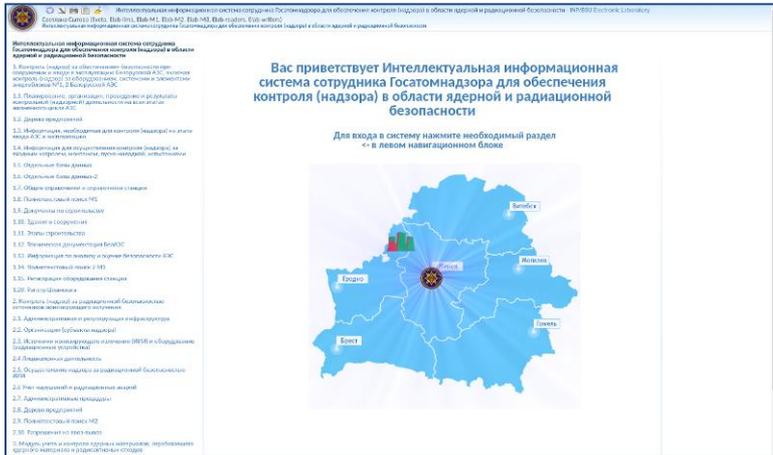# Intellectual Information system to ensure control (supervision) in the field of nuclear and radiation safety

Developer - Institute for Nuclear Problems, Belarusian State University*

The system was developed in 2016-2020 by researchers of the Institute for Nuclear Problems of Belarusian State University.

The system includes some modules, realizing control and supervision over the safety during the construction, commissioning and functioning of the Belarusian NPP, over radiation safety of ionizing radiation sources as well as for accounting and control of nuclear materials and radioactive waste.

It is designed to automate the work of Gosatomnadzor employees. In Belarus, the Department of Nuclear and Radiation Safety of the Ministry for Emergency Situations of the Republic of Belarus (Gosatomnadzor) implements the functions of a nuclear regulatory body in the fields of nuclear and radiation safety.

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Intellectual Information system to ensure control (supervision) in the field of nuclear and radiation safety

The system is based on free software: Debian GNU/Linux, Web-server Apache, the Firebird data base server, PHP application server. The system runs under Windows and Linux.

The system is designed for Intranet usage with concurrent multiuser access. Communicating with the Gosatomnadzor staff outside of the main building is carried out via VPN.

System contains the following modules:

1. Module of control (supervision) over ensuring safety during the construction, commissioning and operation of the Belarusian NPP, including control (supervision) over the equipment, systems and elements of power units No. 1, 2 of the Belarusian NPP;
2. Module of control (supervision) over radiation safety of ionizing radiation sources, including automation of issuing permits for the import and export of ionizing radiation sources;
3. Module for licensing process;
4. Module for accounting and control of nuclear materials and radioactive waste;
5. Module "General information and auxiliary tools".

Data from the old databases of Gosatomnadzor on accounting for radiation sources and nuclear materials were loaded into the system with the help of special scripts.

The system is connected to the Unified Register of Licenses https://license.gov.by/ and the database of the Ministry of Taxes and Duties of the Republic of Belarus http://nalog.gov.by/.

At present, in the Republic of Belarus at the level of the regulatory body, **all accounting** of ionizing radiation sources, **all accounting** of nuclear material with reporting to the IAEA and the **supervision** on the commissioning and functioning of the Belarusian NPP are carried out via the system.