

**International Conference on Occupational Radiation Protection:
Strengthening Radiation Protection of Workers –Twenty Years of Progress
and the Way Forward**

Contribution ID: 215

Type: **Poster**

Ensuring radiation safety at nuclear fuel cycle closing enterprises based on safety culture principles

The entry into the new millennium was marked by a new stage in the development of nuclear energy. The revival of global nuclear energy is directly related to the solution of such problems as:

- increase in energy consumption by the population of the planet;
- problems of ecology and climate change.

It is obvious that the above problems require more environmentally friendly energy sources, the most significant of which is nuclear power.

The closure of the nuclear fuel cycle is recognized as a strategic direction for the development of nuclear energy in Russia. The main purpose of closing the nuclear fuel cycle is to maximize the use of the energy potential of nuclear fuel through the reuse of nuclear materials and to minimize the amount of radioactive waste subject to final isolation. One of the leading positions in the development of a closed nuclear fuel cycle in Russia is occupied by a Mining and chemical Combine (MCC).

The following technological facilities that form the basis of a closed nuclear fuel cycle are concentrated at the MCC: spent fuel storage, MOX fuel production, and a radioactive waste management complex. The presence of such radiation-hazardous facilities obliges the company to pursue a policy that shows that ensuring safety has the highest priority over other activities of the enterprise.

The implementation of the following measures at the enterprise makes it possible to ensure radiation safety when handling ionizing radiation sources:

- compliance with the requirements of legislation and regulatory and technical documentation on radiation safety;
- annual planning and monitoring of the implementation of measures to ensure and improve radiation safety in the divisions of the enterprise;
- carrying out work to substantiate the radiation safety of new products, materials and substances, technological processes and industries that are sources of ionizing radiation;
- implementation of systematic industrial control over the radiation situation;
- control and accounting of individual radiation doses of employees of the enterprise.

One of the fundamental directions in terms of ensuring radiation safety is the control of doses of external and internal irradiation of the personnel of the enterprise involved in work using ionizing radiation sources.

The organization of individual dosimetric control includes:

1. Individual dosimetric control of external radiation with the use of individual dosimeters;
2. Control of the individual dose of internal radiation using a human radiation spectrometer or biophysical methods of monitoring biosubstrates to determine the individual intake of radionuclides into the body of each employee;
3. Individual dosimetric control based on the results of dosimetric control of workplaces.

Figure 1 shows the dynamics of the average annual doses of personnel of the main production facilities of the Mining and Chemical Combine in the period from 2000 to 2019.

In recent years, the values of the average annual doses of the personnel of the main production facilities of the enterprise are in the range of 0.6-3.7 mSv, and for the Mining and Chemical Combine as a whole 0.7-1.1 mSv.

Speakers email

v.v.shelenkova@mail.ru

Speakers affiliation

Mining and chemical combine

Name of Member State/Organization

Russia

Primary author: SHELENKOVA, Veronika

Co-author: Mr FOMINYKH, Petr (Mining and chemical combine)

Presenter: SHELENKOVA, Veronika

Session Classification: Session 6. Occupational radiation protection in nuclear power plants and nuclear fuel cycle facilities

Track Classification: 7. Occupational radiation protection in nuclear power plants and nuclear fuel cycle facilities