RADIATION AND ENVIRONMENTAL MONITORING OF THE TERRITORIES OF THE CHERNOBYL EXCLUSION ZONE – A KEY MOMENT IN ITS FUTURE DEVELOPMENT

Poliakova I.O.[1], Popov O.O.[2], Kochelab E.V.[3], Kovach V.O.[4], Iatsyshyn A.V.[5]

1. *Senior Scientist, Center for Information-analytical and Technical Support of Nuclear Power Facilities Monitoring of the NAS of Ukraine (Center NAS of Ukraine), polyakova_ira@ukr.net*
2. *Director, Center NAS of Ukraine, sasha.popov@ukr.net*
3. *Senior Scientist, Center NAS of Ukraine, cnpfm.info@gmail.com*
4. *Leading Scientist, Center NAS of Ukraine, valeriiakovach@gmail.com*
5. *Senior Scientist, Center NAS of Ukraine, iatsyshyn.andriy@gmail.com*

* Corresponding author email: polyakova_ira@ukr.net

The Chernobyl disaster created a radiation environment extremely dangerous for human health and the natural environment in a large area of Ukraine.
Some territories of Ukraine have experienced intense contamination with long-lived radionuclides, with the density of soil contamination above the pre-accident level with isotopes of cesium (Cs), sometimes reaching 15.0 Ki/km^2 and higher, strontium (Sr) 3.0 Ki/km^2 and higher, or plutonium (Pu) 0.1 Ki/km^2 and higher, and the calculated effective equivalent dose of human radiation, taking into account the coefficients of migration of radionuclides into plants and other factors, may exceed 5.0 mSv (0.5 ber) per year and will never be suitable for the population to live and conduct economic activities.
Taking into account the prospects of creating conditions for a deep geological burial, the attention of scientists is focused precisely on the Chernobyl exclusion zone, where the most suitable conditions for the burial of highly active and long-lived waste will be provided and there will be no negative impact on the population and the environment from the implementation of the specified type of activity.
Scientists of the Center for Information-analytical and Technical Monitoring of Atomic Energy Facilities of the National Academy of Sciences of Ukraine (Center NAS of Ukraine) performed the following works:

- the prospects for the development of such a segment of the nuclear fuel cycle as deep geological burial/storage of highly active and long-lived radioactive waste and nuclear fuel were thoroughly investigated;
- analytical and instrumental studies of a prospective site in the Chernobyl Exclusion Zone for the placement of a deep geological burial/storage of highly active and pre-existing RW and SNF were carried out;
- a report based on research results was developed and provided to the customer: «Report on the analysis of the results of screening the territory of the exclusion zone of the Kyiv region in order to identify areas (potential sites) suitable for the placement of a geological repository for radioactive waste, № 0125U001117, Kyiv, Center NAS of Ukraine, 208 p.»

Analysis of the prospects for the development of nuclear fuel cycle in Ukraine and the selection of a site for the deep geological burial/storage of highly active and long-lasting radioactive waste and nuclear fuel is an extremely important and responsible step of the state, related to radiation and nuclear safety, safety for the population and the environment, as well as responsibility to future generations for not transferring an excessive burden in matters of safe handling of RW and SNF.