O. Moshkovska, Master student
S. Sukhovetska, language advisor,
Zhytomyr State Technological University

RESTORATION OF FORESTRY ACTIVITIES IN CONTAMINATED BY RADIONUCLIDES FORESTS IN STATE ENTERPRISE "OVRUCH FORESTRY"

The current radiation situation on SE "Ovruch forestry" forest lands contaminated by accidental radioactive release at Chernobyl NPP was considered. It was proved that the forests territories with contamination density of 137 Cs <1 Ci / km2 increased by 5378 hectares due to auto rehabilitation processes in forest ecosystems for almost 30 years after radiation contamination of SE "Ovruch forestry" forests.

Involvement of the contaminated forest lands into production should be done after their rehabilitation.

Keywords: forest ecosystem, radioactive contamination, forest land, rehabilitation methodology.

According to the data, almost 40,945 hectares of SE "Ovruch forestry" forests are considered to be a zone of radioactive contamination after Chernobyl accident. Current radiation situation in the contaminated forests is caused by a complex of factors that determine the intensity of the biological cycle of radionuclides in ecosystems. The main factors are: radiation contamination density of soil, composition of radionuclides, physical and agrochemical properties of soils.

The radiation situation in the contaminated territories significantly changed for the last 30 years after Chernobyl accident. The changes of radiation situation in forests were caused by two factors: under the influence of physical decay of such short-lived and biologically significant radioactive elements as 137 Cs and 90 Sr; due to redistribution of radionuclides between components of forest ecosystems and irreversible fixing in the soil absorbing complex.

Compared to 1991, the territory of forest lands with 137 Cs contamination density of more than 1 Ci/km2 decreased by 5,378 hectares in 2015. Now, all forestry activities there can be spent without restrictions. Forest territory that belonged to the zone of absolute resettlement (> 15 Ci/km2) also decreased by 2,793 hectares. The first-priority forestry activities such as monitoring of working hours when performing urgent forest-protection works and developing a special mode of fire-prevention and forest-protection works should be performed at these areas. Forest lands of a zone of guaranteed or voluntary resettlement (5-15 Ci/km2) decreased by 13,372 hectares. Now, the measures to limit the use of fuel wood and treated timber, as well as timber for storing food and household products and wood for other purposes must be conducted. Finally, the forest territory with intensified radiation monitoring increased by 8,469 hectares. These lands are required to carry out measures to limit the usage of mushrooms and some herbs, as well as to limit the usage of medicinal plants, berries and hay from forest grasslands.

Mentioned above changes of radiation situation in contaminated forests occurred naturally due to the physical decay of radionuclides and their redistribution between components of forest ecosystems. Therefore, these changes of radiation situation in forest ecosystems can be considered as auto rehabilitation as far as they occurred without human intervention.

Now, it can be asserted that the radiation situation in contaminated forests is stable and predictable, which gives reason to start rehabilitation of the contaminated forest lands.

Conclusions:

1. According to the data, almost 40,945 hectares of SE "Ovruch forestry" lands are contaminated by accidental release after Chernobyl accident. But, with a time span, the radionuclides redistribution between litter and soil occurs due to the radionuclides vertical migration in contaminated forest ecosystems.

2. The radiation situation in the contaminated territories significantly changed for the last 30 years after Chernobyl accident. Compared to 1991, the territory of contaminated forests with 137Cs contamination density of > 1 Ci/km2 decreased by 5,378 hectares under the influence of forest ecosystem self-cleaning (auto rehabilitation). Today, all forestry activities can be carried out without restrictions.

3. Rehabilitation of the contaminated forests can occur in two ways: due to auto rehabilitation; and through active human intervention, that is, by the implementation of measures of gradual restoration of forest lands for their intended purpose and the gradual renewal of the forest products usage in forest lands that are contaminated by radionuclides.