The main objective of the research was to study the migration of tritium as the most active radio-nuclide over radioactive waste storage landfills and to project the intensity of industrial pollution of water-bearing layers. Radioactivity is a distinctive feature of tritium. On the one hand, it promotes its extensive use in small quantities in various spheres of the human activity, and on the other hand, it produces a negative impact on the environment due to its ability to accumulate in cells. The author considers the issue of distribution of radio-nuclides both in horizontal and vertical directions to prevent or to limit their release into further zones of waste storage landfills.

The proposed monitoring system detects the condition of storage facilities and adjacent zones from the viewpoint of environmental security. It is based on a reliable method of monitoring of the condition of structures. The objective is to ensure the security and further safe operation of depositories. The findings have also served as the instrument of evaluation of effectiveness of implementation of the proposed technology. The methodology assures a timely warning of potential danger due to the negative impact produced by near-surface storage facilities onto the environment in connection with the migration of radio-nuclides. Moreover, extension of the operating life of existing storage facilities may involve a substantial economic effect.

**Key words:** radio-nuclides, tritium, migration, hydrogeology, environment, radioactive waste, migration model.

### References