

Modeling and simulation of data from radioactive waste processing

Achieving efficient radioactive waste management is only possible in the presence of international cooperation, based on the principles established by the Joint Convention on the Safety of Spent Fuel Management and on the Safe Management of Radioactive Waste and the security recommendations of the International Agency's for Atomic Energy (IAAE) on the safe management of spent fuel and radioactive waste.

In order to maintain a high level of security of radioactive waste and environment, radioactive waste packages must meet a number of acceptance criteria. The National Commission for Nuclear Activities Control (CNCAN) introduced through the "Fundamental Norms for the Safe Management of Radioactive Waste" the IAAE principles in Romania. In our country, the body empowered to promote, develop and monitor nuclear activities for exclusively peaceful purposes and to coordinate at national level the process of radioactive waste management, including its final disposal, and the decommissioning of nuclear installations is Nuclear Agency and for Radioactive Waste (ANDR). Romania is among the pioneers of the international nuclear domain, the peaceful applications of nuclear energy being the subject of research activities since the 1950s. Decommissioning of nuclear installations refers to the progressive elimination of risks through a series of decontamination and decommissioning actions which must be achieved according to a Integrated Plan for the Decontamination, Decommissioning and Radioactive Waste Management.

The paper presents a non-linear regression model for assessing the evolution of the radioactivity of the waste arising from the decommissioning of a nuclear reactor based on a statistical analysis of the data obtained from the processing of radioactive waste. Such a model allows the Monte-Carlo simulation method (or other real-time amplification methods) of the variation in the emission of radioactive substances. The phenomenon studied can be defined by the introduction of control coefficients and the use of records and documents elaborated during the decommissioning of a nuclear reactor.

Summary

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