



## SCENARIO DEVELOPMENT FOR TRGOVSKA GORA SHALLOW LAND FACILITY

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### **Abstract**

Safety assessments, either preliminary or final, consist of a qualitative and a quantitative part. The qualitative part of the assessment implies a selection of relevant scenarios to be analyzed, while the quantitative part of the assessment consists of their mathematical modeling. This work is dealing with the qualitative part of safety assessment concerning a specific radioactive waste disposal system, i.e., the shallow land facility situated on the macrolocation Trgovska gora. This article has as its purpose a brief presentation of the ISAM methodology application results (*Improvement of Safety Assessment Methodologies for Near Surface Radioactive Waste Facilities*); a methodology developed within the framework of a project of the same name, organized by the IAEA. The above mentioned methodology is based on the development of the so-called FEP list (*Features, Events, Process*), on selection procedure of the FEP list, specifically regarding particular criteria defined in advance, and on application of systematic methods of selecting relevant scenarios (in this case the matrix of interactions method has been applied). The main aim and purpose of a methodology based on the analysis of FEPs (identification, classification, selection, construction of the matrix of interactions) consists of observing and documenting all the features, events and processes due to be taken into consideration while assessing safety of a particular radioactive waste disposal system. In this connection, by radioactive waste disposal system we mean a system consisting of radioactive waste and engineer features (barriers), geological environment within which the disposal site is located, surface-environment (soil, sediments, vegetation, etc.) and human population near the disposal site. The final step of the application of this methodology consists of generating the scenario using the matrix of interactions. So, for shallow land facility situated on the macrolocation Trgovska gora, applying the mentioned methodology, 87 FEPs from the comprehensive list of 139 have been singled out assessed as relevant. Then, using the matrix of interactions seven scenarios have been constructed. These scenarios, partly belonging in the family of normal evolution scenarios (2 scenarios) and in other part in the family of altered evolution scenarios (5 scenarios), are recommended as scenarios due to be analyzed within the quantitative part of preliminary long-term safety assessment.

### **Key words**

radioactive waste disposal system, FEP, scenarios, safety assessment, matrix of interaction