



SIMULATION OF GROUND-WATER CONTAMINATION BY TRITIUM, APPLICATION TO A MOROCCAN SITE

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Tritium is a radioactive element. Its movement in the environment depends on the chemical forms that it takes. Tritiated water is one of these forms. The infiltration of tritiated water can cause contamination of the environment and the underground water. In this context, we have taken into account a waste contaminated by Tritium and stored on the surface of the soil. We studied the impact of an infiltration of a unit activity of this radioelement in the Moroccan site of Maamora, localized in the Rharb region. The principal objective of the work presented in this paper is to give necessary information for the site environmental surveillance program establishment.

The assessment is based on the characteristics of the site considered. It is carried out using the methodology taken into account in the Lawrence Livermore National Laboratory (LLNL^(a)) for the pollutant transport simulation in the unsaturated zone (between the soil and underground water). This methodology is based on the mathematical model called NUFT [1, 2], which is a unified suite of multiphase, multicomponent models for numerical solution of non-isothermal flow and transport in porous media with application to subsurface contaminant transport problems. NUFT have been developed in LLNL (Livermore USA).

Considering a quantity of one Curie of Tritium and considering the assumptions of impact assessments of the radioactivity on the Maamora ground water, the concentration of this radionuclide in water will be lower than 0.4% of the acceptable Tritium limit in water.

Taking into account the physical and hydrogeological characteristics of the site studied and in the basis of the site radiological baseline, the environmental impact of the tritium infiltration into the underground water is negligible for the case studied.

Keywords *Radioactivity, Tritium, Assessment, radiological baseline*