



Radon and heavy metal risk assessments of drinking water sources

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ABSTRACT

In this study, the concentrations of radon and heavy metals were measured in drinking water samples from the Pusat-Özen Dam (Hafik Dam), Sivas, Turkey. The measurements were conducted using an active radon gas analyser and energy dispersive X-ray fluorescence. The annual mean radon concentration and the annual effective dose equivalent were found to be 0.103 Bq L⁻¹ and 0.266 µSv year⁻¹, respectively. The results were compared with the international recommended values. All measured radon concentrations were below the safe limit as recommended by the World Health Organization and the United States Environmental Protection Agency. Via an elemental analysis studies, 20 different elements in the drinking water were evaluated for health risks. The annual mean values of Al, Ar, Cr, Fe, Ni, Mn and Se are higher than the recommended permissible limits. The results of this study provide a data baseline for future studies and subsequent evaluations of possible environmental contamination in Sivas.

Keywords: Drinking water; Heavy metals; Radon; Risk assessment; Water quality

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