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## IMPACT OF THE NUCLEAR POWER PLANT TEMELÍN ON CONCENTRATION OF SELECTED RADIONUCLIDES IN THE HYDROSPHERE

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The paper presents results and interpretation of long-term monitoring of occurrence and behaviour of selected radionuclides in the vicinity of the Temelín Nuclear Power Plant (Temelin NPP). Temporal and spatial changes in concentrations of tritium, strontium 90 and caesium 137 were assessed. Concentrations of radionuclides were evaluated in surface water both affected and unaffected by waste water discharges from the Temelín NPP before and during the operation of the plant. The assessment included residual contamination from atmospheric tests of nuclear weapons in the last century and the Chernobyl accident in 1986. Results of long-term monitoring (1990–2019) were used for derivation of effective ecological half-lives. Possible impact of waste waters discharged from the Temelín NPP on tritium, caesium 137 and strontium 90 concentrations in the Vltava River was assessed by using data observed over the period of 2001–2019. A decline in caesium 137 and strontium 90 concentrations was observed in all of the monitored sites. A very slow decline in tritium concentration at unaffected sites was observed. At sites downstream from the power plant the  $^3\text{H}$  concentrations were significantly higher, an evident impact of the power plant operation. It can be stated, that operation of the Temelín NPP with two reactors with installed output 2164 MWe did not cause exceeding the values of permissible pollution and environmental quality standards according Government Regulation 401/2015 Col.