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## MODELLING THE MIGRATION OF ANTHROPOGENIC POLLUTION FROM ACTIVE MUNICIPAL LANDFILL IN GROUNDWATERS

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### Abstract

Landfill requires a systematic monitoring of its impact on groundwater and surface waters. The paper presents the modeling of pollution migration for cases when leachate penetrates the aquifer layer. For this purpose, a conceptual hydrodynamic model of the aquifer was developed in the program Visual ModFlow Pro, which is a spatial two-layer model. Chloride ion was used as an indicator defining the rate of pollution migration. The results of calculations and modeling of pollution migration in soil-water conditions demonstrated that it is practically impossible for pollutants to penetrate the aquifer, since a sufficient protection is provided by artificial insulation and a layer of sandy clays. A potential pollution migration to groundwater can only occur after a rupture – damage to the insulation layer. In such a case, vertical infiltration will be taking place in the 4eration zone for a relatively long period, while the migration of pollutants already in the saturation zone (hydrated) will be taking place at a relatively high speed.

Keywords: Landfill site; Leachate; Environmental monitoring; Modeling; Pollution migration.