Pollution of soil and groundwater from infiltration of highly contaminated stormwater - a case study - DTU Orbit (16/05/2019)

Pollution of soil and groundwater from infiltration of highly contaminated stormwater - a case study

A surface and a sub-surface infiltration system that received runoff water from trafficked roads for several decades was dug up and the contamination with heavy metals, PAH and AOX was investigated. Most measured solid phase concentrations exceeded background concentrations in nearby surface soils and subsurface sediments and some even exceeded guidelines fixed to preserve the fertility of soil. However, the contamination decreased rapidly with depth. None of the measured metal concentrations in simulated soil solutions exceeded defined drinking water quality standards. Surprisingly, the surface and the sub-surface infiltration system seemed to be equally good at retaining pollution. This indicates that the runoff sludge found in such infiltration systems plays an important role both as a source and a sorbent for stormwater contaminants. The study does not point at a considerable risk for groundwater contamination due to stormwater infiltration, but highlights that well absorbable contaminants readily available in urban stormwater runoff eventually build up in surface soils and sub-surface sediments to environmentally critical concentration levels. Thus, on the one hand stormwater infiltration systems may act as effective pollution traps and on the other, they may pose a potential solid waste disposal problem that future stormwater management based on local infiltration will have to face. (C) 1997 IAWQ. Published by Elsevier Science Ltd.

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