

REACTIVE TRANSPORT INDUCED BY AQUIFER RECHARGE MANAGEMENT USING TREATED WASTEWATERS

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ABSTRACT

In order to transform wastewater into a new water resources with specific and appropriate uses (irrigation, stop saltwater intrusion, etc..) several concepts and scenarios for artificial recharge of deep aquifers have been proposed. Even if this technology can help supply water to several parts of the world water shortage it is necessary to control the physical, physico-chemical and bacterial conditioning the fate of any recalcitrant organic and inorganic pollutants treated wastewater and / or surface water of poor quality. This knowledge will help ensure compatibility of the technology to implement with the features and quality of water recharge, geochemical and microbiological reactivity of different compartments of the soil, subsoil and aquifer as well as receiver under specific climatic conditions. A detailed study of mechanisms of transfer reagents recharge water through the UZ is a prerequisite for the development of a proposed wastewater reuse. To this end a pilot consisting of a column of soil was build to analyze the scale of displacement reactive fronts, their amplification or mitigation. This is a cell of 3 m in diameter and 4 m in height, fully insulated from the ground to comply with regulatory constraints, and filled with a soil characteristic of the region. The availability of pilot results over a period of eighteen months will be presented coupled with an interpretative modelling approach incorporating the mechanisms of transport and reactions of dissolution - precipitation of minerals, degassing and geobiochemical processes.

Keywords: Reactive Transport, Geochemical, Microbiological, Aquifer Recharge Management, Treated Wastewaters