NEW GENERATION SLURRY WALL FOR CONTROLLING LEACHATE LEAKING FROM LANDFILL SITE

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ABSTRACT

This paper present a new type of slurry wall. The material used in the wall consist of three basic material element mixed homogeneously with water into one system. These three materials are: (a) fine-grained tire aggregate, (b) nanoscale iron particles, and (c) homoionic modified soil, mixed with water to form a slurry-type material. The major purposes of this new type of slurry wall are both that fine-grained tire aggregate and nanoscale particles have the ability to stabilize and/or decontaminate hazardous/toxic substances in the ground soil at in-situ condition, and the homoionic modified soils can control soil's hydraulic conductivity, shear strength, compressibility, sorption characteristics,etc. by manipulating ions in the soil. The main uses of this new generation slurry material are to improve the effectiveness of current conventional hazardous control facilities such as landfill liners, top seals and barrier walls. In addition, this type of slurry can also be used to seal existing cracks and repair premature or progressive failures.

This is an ongoing research project. This basic and fundamental of the new generation of material system have been explained in previous publications. In this paper, focus is placed on the further laboratory studies, further refining the in-situ measuring apparatus and larger scale field investigations into the effectiveness of the new generation slurry material systems.

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