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APLICACIÓN DEL MODELO VISUAL MODFLOW PARA LA EVALUACIÓN DE LA
HIDRODINÁMICA DEL ACUÍFERO SUBYACENTE A UN VERTEDERO DE RESIDUOS
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Abstract

The municipality of Mexicaltzingo, State of Mexico, is facing the problem of solid waste disposal. This disposal has been happening for over 25 years in a site which does not have the necessary engineering measures to contain the leachates generated in the site. This research work was focused on the modeling of water flow, both sub-superficial and deep levels using the Visual Modflow 2010.1 software. It was defined a grid consisting on 60 rows and 40 columns, with a regular cell size of 25x25 m. Vertically, the model consists on 11 layers which match with the aquifer units identified by a stratigraphic profile of 27.6 m depth. Groundwater was monitored by a network formed by nine piezometers with depths between 6 and 25 m. By using the ArcGIS version 9.3 software, the landfill, the piezometer network and the water extraction well were geotagged. Through the Surfer ver. 8.08 software it was obtained the digital elevation model (DEM) for all the strata. The results modeling the flow to 15 years show that this flow is directed from SW to NE of the dump and it is deflected slightly towards the water extraction well of the population, constituting a risk due to the transport of the pollutants contained in the leachate generated in the landfill.

Keywords

Aquifer, landfill, piezometers, modeling, leachates.