

## Heavy metals profiles in a groundwater system at a solid waste disposal site, Taiping, Perak

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### Abstract

This paper presents the distribution of heavy metals in a groundwater system at a solid waste disposal site in Taiping, Perak. In this study several boreholes were constructed within the solid waste disposal site. Soil samples were collected from the alluvial deposits at 1 m intervals between 6 and 30 m depths from 6 boreholes using a down-hole hammer. The pore water content of the samples and the ground water was extracted in order to determine the concentrations of heavy metals, such as lead (Pb), manganese (Mn), chromium (Cr), iron (Fe), zinc (Zn) and cadmium, (Cd) using the Inductively Couple Plasma Spectrometer (ICP-MS). From the profiling results, the penetration of heavy metals into the groundwater system was obtained. A profile of heavy metal concentrations in the pore water of the core samples at several boreholes within the study area, and heavy metals concentration in groundwater under different conditions were obtained. Some of the heavy metals concentration such as Pb, Mn, Zn and Fe were high. These high concentrations exceed the maximum permissible concentration as specified in the Drinking Water Standard. Based on contour diagrams, the heavy metals can be detected down to 25 m depth towards the southeast of the landfill and appear to be localized.

### Author keywords

Core soil; Groundwater; Heavy metals; Pore water; Waste disposal site

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