

Characteristics of Leachate at the Air Hitam Sanitary Landfill in Puchong, Selangor

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Abstract: The Air Hitam sanitary landfill in Puchong, Selangor currently receives 3000 ton/day of solid waste. The landfill has been in operation since November 1995, in what was formerly a valley area. The purpose of this study is to determine the characteristics for leachate from lined landfill in helping to develop more useful quality leachate database for other landfills where leachate treatment must be designed in advance. The composition of leachate varied depending mainly upon their sampling points. It was found that the leachates possessed a typical characteristic; that is young leachate (AH3) at Air Hitam sanitary landfill was generally characterized by higher values of leachate characteristics. The concentrations of Na⁺ and K⁺ were exceptionally high, 8160 ~ 20166.7 mg/l for Na⁺ and 3416.333 to 7916.667 mg/l for K⁺. Heavy metal concentrations were found to be relatively low for Mn (0.001 ~ 0.005 mg/l), Cd (0.002 ~ 0.006 mg/l), Cu (0.046 ~ 0.095 mg/l) and Cr (0.046 ~ 0.175 mg/l) while those of Fe (1.447 ~ 3.627 mg/l), Zn (0.110 ~ 0.242 mg/l), Pb (0.050 ~ 0.217 mg/l) and Ni (0.085 ~ 0.167 mg/l) were relatively higher. The values of sulfate also varied for leachate samples with values between 218.75 to 993.75mg/l. The concentrations of ammoniacal nitrogen in leachate samples were 107.5 up to 419.17 mg/l. Although heavy metals determined were comparatively low and heterogeneously distributed in and around the landfill, the site is a source of contaminants to the monsoon drains and directly to the river. Low COD value was found in ground water sample indicating that the groundwater was not polluted by leachate at the Air Hitam sanitary landfill.