ISBN 978-602-98397-4-6

HYDROLOGICAL STUDY TO PROVIDE A MODEL OF SURFACE AND GROUNDWATER POLLUTION FROM LEUWIGAJAH LANFILL DISPOSAL IN WEST JAVA INDONESIA

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ABSTRACT: Leuwigajah landfill final disposal has been abandoned in 200S due to a landslide of waste heap therefore the dosure of this landfill was not carried out properly where there was not covered with immpenneabel material tor protecting the trash from rainwater. The catchment area of trash and the landfill are 28.4 hectare and 75.4 hectare respectively. The water balance of the study is consisted of rainfall oof 2,535 mmlyear, evapotranspiration of 1,205 *mm/year,* infiltration of 1,275 *mm/year* and runoff of 55 mm/year. Groundwater recharge and river baseflow are 1,015 mm/year and *1,260 mm/year* respectively. Water quality analysis shows that surface water and goundwater have been contaminated inwhich have a high value of metals concetration, total dissoved solid, and electrical conductivity. The pollutants movement from the landfill to groundwater pass through andesite rock fractures.

KEYWORDS: landfill disposal, water balance, pollution, groundwater, rock fractures, water quality

1. INTRODUCTION

Leuwigajah landfill disposal as administrative is located between district of Bandung and Cimahi city. It is occupied in abandoned andesite mine site with an area of about 25 hectare, and the height is between 650 to $n5$ meters above sea level. It is located between Mt. Leutik at north and Mt. Gajahlangu at southeast. The landfill was operated since 1986 untill 2005 due to the occuring of a big landslide of waste heap. It is about 25,550 metric tons of waste has been dump into this landfill. The source of waste was from Bandung City, Bandung district dan Cimahi City. There is no dam structure for preventing landslide then when the landslide occurred, it burried some villages under the landfill area. Picture 1 provides a location of the Leuwigajah landfill and it's surrounding areas. The s[3]tudy objectives are to find out hydrogeological conditions of the study area and to predict contamination distribution from the landfill in groundwater. This study carried out by using descriptive analysis method.

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