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Letters

The waste solid wax containing VOCs and man-made strata in the municipal waste disposal site

Masahito OWAKI[1], Toru ITAZU[1], Kenji NANBA[2], Iku MIYASAKA[3], Asuka TAKAHASHI[4] and Hisashi NIREI[5]

1: Graduate school of Science and Engineering, Ibaraki University, 2-1-1, Bunkyo, Mito, 310-8512 Japan

2: Graduate school of Agricultural and Life Sciences, The University of Tokyo

Present address: Faculty of Symbiotic Systems Science, Fukushima University, 1, Kanayagawa, Fukushima, 960-1296 Japan

3: Graduate school of Agricultural and Life Sciences, The University of Tokyo

Present address: Ishikawajima-Harima Heavy Industries Co., Ltd., 1, Shin-Nakaharama-cho, Isogo, Yokohama, 235-0031 Japan

4: Tanaka Kankyo Kaihatsu Corp., 2-42-3, Minami-Otsuka, Toshima, Tokyo, 170-0005 Japan

5: Center for Water Environment Studies, Ibaraki University, 1375, Ohu, Itako, 311-2402 Japan

Abstract

Japan's rapid economic growth in the last half-century has led to the need for numerous final disposal sites. However, landfill capacity is currently not keeping up with the ever-increasing volumes of waste, and field studies and researches into final disposal sites are not offering solutions rapidly enough. We base this study on records of the strata of waste layers and volatile organic compounds (VOCs) concentration distribution in ground air and strata in a municipal waste disposal site.

Our investigations of VOC concentration distribution at a municipal waste disposal site revealed that waste solid wax contained VOCs. We confirmed, in a detailed analysis, that this material was polyethylene or paraffin wax containing trichloroethylene (TCE) at approximately 70 g/kg and cis-1,2-dichloroethylene at 2 g/kg. Because of the presence of waste solid wax, the VOC concentration levels in ground air are high and very localized. Furthermore, the VOC concentration levels in deposits and leachate water through the waste layer are very low.

In the subsurface, we observed that the behavior of VOCs emitted from waste solid wax differs completely from that of the dense, non-aqueous phase liquid (DNAPL) of VOCs, and it was clear that waste wax can be a significant source of VOC concentration.

Keyword: VOCs, TCE, polyethylene wax, paraffin wax, waste disposal site

Health Hazards of Arsenic-contaminated Water in Pakistan: The Case of Chahklalanwala Village, District Kasur

RAHMAN Atiq Mohhamad and Takeshi KOMAI

Institute of Geo resources and Environment (GREEN), National Institute of Advanced Industrial Science and Technology (AIST) 16-1 Onogawa, Tsukuba, Ibaraki, 305-8569 Japan e-mail: atiq@uderc.com

Abstract

The Punjab province in Pakistan is facing a growing threat of naturally occurring arsenic in groundwater. Consumption of arsenic-contaminated groundwater has recently imposed severe health impact both in rural and urban areas of Punjab. In this research, a village named Chahklalanwala (Chah-kalalan-wala) was selected in Kasur district in order to study the health hazards of arsenic and fluoride contamination in rural areas of Pakistan. This village can be called as a little Minamata of Pakistan in terms of water related diseases. This paper mainly aims to discuss the contamination level of Arsenic and Fluorides in drinking water, health situation in Chahkalalanwala Village, and our approach of social organization to enable local communities for environmental self-governance.

Keyword: Pakistan, Japan, Arsenic, Water, Environment, GIS