CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

In the present study, a high As concentration was founded in dry season at the monitoring well where located in the north of the landfill. Also, in some wells were found Fe and Mn exceeded the acceptable limitation, therefore the shallow groundwater quality in this area would not be suitable for drinking purpose. The typical of shallow groundwater in this area are the mixed, calcium bicarbonate and sodium chloride types, which may occur from water-rock interaction along the groundwater flow system.

The major aquifer medias of shallow aquifer are sand and sandy loam, which their dispersion coefficients are 18.68 cm^2/hr and 13.65 cm^2/hr, respectively. Sorption coefficient of sand and sandy loam ranges from 6-8 cm^3/mg and 20 cm^3/mg, respectively, indicating that the transport of As in sand is much faster than that in sandy loam

The groundwater flow and As distribution plumes simulated using GMS MODFLOW and MT3D. The results showed that the groundwater direction flows from the mountainous area in the northeast to the floodplain area in the southwest and As migrate from the landfill site to the river, in the north-westward direction due to the local flow effect. The area affected by As plume in 50 years during 2010 – 2060 should not extend farther than 1,500 m with 0.001 mg/L of As concentration which is not expected to affect local community around this landfill.

6.2 Recommendation

1. Due to this study only focuses on As, the further study should investigate other potentially toxic metals such as Fe and Mn.

2. The further study should use the other mathematical models such as PHREEQC to describe the reactive contaminant transport including backward prediction, which would be useful to describe the source of contaminant.