

UNIVERSITI TEKNOLOGI MARA

**CONTAMINATION OF LEAD, CADMIUM, AND
CHROMIUM IN MONITORING WELLS AND DRAINAGE
CANALS IN A PADDY FIELD AND ITS POTENTIAL
HEALTH RISKS TO FARMERS**

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**Project paper submitted in partial fulfillment of the requirements
for the degree of
Bachelor in Environmental Health and Safety (Hons.)**

FACULTY OF HEALTH SCIENCES

JULY 2014

Declaration by students

Project entitled "Contamination of Lead, Cadmium, and Chromium in Monitoring Wells and Drainage Canals in a Paddy Field and its Potential Health Risks to Farmers" is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Associate Professor Hazilia Hussain as project Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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(910218-03-5066)

DATE : JULY 2014

ACKNOWLEDGEMENT

Bismillahirrahmanirrahim. In the name of Allah, all Praise is due to Him, the Sustainer of the Heavens and Earth and all that is within it and may His Blessings be upon the Prophet Muhammad SAW, peace be upon him.

I would like to express my sincere appreciation to my supervisor, Associate Professor Hazilia Hussain for her inspiring guidance, opinion, tolerance, encouragement and support to all my activities and in the preparation of this project. Without her cooperation, my efforts would not have been as successful as it has been. Her moral support was inspirational to me. May Allah bless you.

I would also like to dedicate this appreciation to Dr K Subramaniam, MCIEH who is the Head of Environmental Health and Safety Department for his kind assistance and critical comments during my study. Besides, he gives me invaluable opinion and suggestions too. This appreciation is also referred to the other Environmental Health and Safety lecturers for their passion and support in this study.

Many thanks also to Mr Erdzuam Bin Abd Rasid, Mr Muhammad Azwat Bin Abdullah, Mr Ameran Saiman, Mrs Shajaratul Faseha Majid and, Mr Wan Azlan Mat Isa for their kindness in helping me sharing and solving my problems during my lab work and also trained me on using various kind of instruments especially on the use of Atomic Absorption Spectrophotometer (AAS). Lots of thanks also dedicated to all of the post graduate students.

Last but not least, I would like to thank my family members, Mr Abdul Ghaffar Abdullah, Madam Roslina Abdullah and my sisters for their never ending support, and lovely friends for their love, patience and willingness to share great ideas and brilliant opinions in the making of this study.

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Abstract

Contamination of Lead, Cadmium, and Chromium in Monitoring Wells and Drainage Canals in a Paddy Field and its Potential Health Risks to Farmers

Nurain binti Abdul Ghaffar

INTRODUCTION: Water is one of the very precious substances on the earth and it is very essential for the existence and survival of life. Water quality of fresh water like groundwater and surface water are vitally important for crops plantation. Pollution of water comes from various sources. **OBJECTIVE:** The aim of this study is to assess the level of lead, cadmium, and chromium contamination in monitoring wells and drainage canals in a paddy field and its potential health risks to farmers. **METHODOLOGY:** The data were collected regarding on the concentration of lead, cadmium, and chromium in drainage canals and monitoring wells water. Besides that, the concentration of Pb, Cd, and Cr are in drainage canals and monitoring wells water being compared between two seasons (dry and wet seasons). Then, Average Daily Dose (ADD) for dermal contact was used for health risk assessment. **FINDINGS:** The mean concentration for lead was the highest (0.10 mg/L) in drainage canals water compared to the other two contaminants. Besides that, all the contaminants, Pb, Cd, and Cr concentration do not exceed the Interim National Water Quality Standard for Malaysia Class IV and Food and Agriculture Organization of the United Nations of Rome 1985 are same. The standard for each chemical are Pb (5.00 mg/L), Cd (0.01 mg/L), and Cr (0.10 mg/L). However, the p -value or means of all the contaminants in drainage canals and monitoring wells are not significance because (p -value > 0.05). It showed that there are differences in concentrations of Pb, Cd, and Cr between dry and wet seasons. HI value of Cd showed that there is a moderate or high risk of adverse human health effects occurring through dermal contacts with the water. **CONCLUSION:** The study showed the impact of drainage canals and monitoring wells contaminant that presence and can give potential impact to health.

Keywords: Drainage canals, monitoring wells, contaminants, health risk assessment