

UNIVERSITI TEKNOLOGY MARA

**STUDY ON TOXIC WASTE HANDLING AND
SAFETY PRACTICES WITH HEALTH EFFECTS
AMONG PETROLEUM GAS PRODUCTION
WORKERS**

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ABSTRACT

STUDY ON TOXIC WASTE HANDLING AND SAFETY PRACTICES WITH HEALTH EFFECTS AMONG PETROLEUM GAS PRODUCTION WORKERS

BY

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This study is on toxic waste handling and safety practices in a selected gas manufacturing industry with health effects among petroleum gas production workers. Petroleum industries are involved in a broad spectrum of petroleum operations ranging from oil and gas. One of its key areas of management is by complying with the country's laws which includes the Environment Quality Act, 1974 and Environment Quality (Schedule Waste) Regulations, 2005. The study objective included the management methods of toxic and hazardous chemicals (scheduled waste) and related practices that are used in the Petroleum Gas industry. Further, a comparative cross-sectional study was carried out among exposed workers (n=60) in the petroleum gas production and the data compared with a control group (n=60) in of office workers. The respondents were selected on simple random sampling and included inclusive criteria such as male (sex), Malay (race) and worked for at least three years. The study data revealed that three (n=3) symptoms namely sore throat, asthma and headache were identified among the exposed workers with a significant association ($p<0.05$) due to toxic and hazardous waste exposures. All these symptoms that occurred are related to health effects (toxicity and irritation) among workers. Lube oil (present as a toxic and hazardous waste) has been linked to cancer of the skin and scrotum. The poor control measures that lead to adverse health effects due to the Spent Lube Oil (SW 305) exposures were shown among the exposed groups. It can be concluded that these presence of waste chemicals with toxic and hazardous properties led to health risks to workers who were exposed to these toxic and hazardous chemicals. Improved risk controls based upon the hierarchy of controls would be vital in improving the safety and health among these workers.

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CHAPTER 1

INTRODUCTION

1.1 Background Information

Scheduled wastes of various types and in varying quantities are generated by almost all types of industries in such activities as the processing of raw materials, manufacturer of products and in the operation of public utilities. There are two major categories of industrial-waste generators. The primary high volume generators are, among others, the petroleum, metals, electronic, chemicals, wood treatment, paper, textile, transport and leather industries.

This does not include household, hospital and radioactive wastes that are also being generated. Because there are no designated disposal sites that provide treatment and safe disposal facilities for industrial waste, factories have been forced to store them within their premises. In many cases, these stored wastes not only take up valuable space but also pose significant risks to the public and the environment.

The collection, treatment and disposal of industrial waste is a major issue facing the country today. In the first part of an on-going series, we will look at the definition of industrial waste and hazards they pose. Success often brings with it new problems. This is the case with Malaysia's rapid industrial growth. As factories spring up and start to churn out a myriad of products, so too do they generate waste - industrial waste in the hundreds of thousands of tonnes. How to deal with industrial waste in an efficient, environmentally acceptable and cost-effective way has become a major concern of the public, environment groups and the Government. Currently, there is no comprehensive system in place to deal with industrial waste and the problem is worsening (DOE, 2007).