

**UNIVERSITI TEKNOLOGI MARA**

**OCCUPATIONAL MERCURY EXPOSURE  
AND  
ITS POTENTIAL HEALTH RISKS**

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

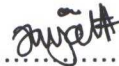
**Faculty of Health Sciences**

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## Declaration by Student

Project entitled "Occupational Mercury Exposure and Its Potential Health Risk" 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 Mr. Ahmad Razali Bin Ishak as Project Supervisor and Prof Madya Rodziah Bte Ismail as Co-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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*"In the name of Allah, the most gracious, the most merciful."*

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## Abstract

### Occupational Mercury Exposure and Its Potential Health Risk.

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*Mercury has been classified as toxic substances that can cause spontaneous degeneration of the brain cortex which can occur as a late sequela to past exposure. It was previously considered as a hazard substance in industrial setting to workers exposure. However, McFarland and Reigel (1978) described the cases of 6 workers who were acutely exposed (4-8 hours) to calculate metallic mercury vapor levels of 1.1 to 44 mg/cu.m. These men exhibited a combination of chest pains, dyspnea, cough, hemoptysis, impairment of pulmonary function (reduced vital capacity), diffuse pulmonary infiltrates and evidence of interstitial pneumonitis. This study shows that exposure to mercury (Hg) vapor more than 0.025mg/m<sup>3</sup>, for short term can trigger symptom of erythredema polyneuropathy. Over exposure of mercury vapor in this industrial of oil and gases is a major concern to human based to its ability to cause neurotoxicity. Objective of this study was occupational mercury exposure among gas processing plant workers and potential health risk. Specific objective is to determine the level of mercury at different area, to determine the level of mercury exposure for different kind of jobs and to assess the potential health risk of workers; this is directed towards the measurement of area monitoring and personnel exposure to mercury airborne contaminants. Personal sampling was using to determine personnel exposure to mercury contaminants. Within 420 minutes, then hopcalite (solid sorbent) were analyzed by mercury analyzer (CVAAS). Sample (n=90). The design of this study is cross sectional study. Questionnaires were distributed to respondents participated to assess the personal protection equipment and frequency of exposure. Mercury concentration obtain from the analysis ranged from <0.0002 to 0.4427mg/m<sup>3</sup>. Mean Mercury vapor concentration exposure during the turnaround activity is 0.0119mg/m<sup>3</sup>. Average exposure dose milligrams per kilogram of body weight per day is 0.0006mg/m<sup>3</sup>, which is low risk in developing health risk based study EPA RfC (base line for 0.009mg/m<sup>3</sup>). This study shows that the prevention and control made by the management of industrial of oil and gases are be they concern. Further study on the medical surveillance such as neurobehavioural tests should be done to assess any health affected.*

**Key words:** *mercury vapor (Hg<sup>+</sup>) exposure, personnel monitoring, area monitoring, potential health risk*