

PETRONAS TECHNICAL STANDARDS

HEALTH, SAFETY AND ENVIRONMENT

GUIDELINE

HEALTH SURVEILLANCE

PTS 60.1501.03

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This new PTS 60.1501.03 GUIDELINE FOR HEALTH SURVEILLANCE August 2011 Revision 0 has been developed to outline the PETRONAS requirements on Health Surveillance activities in its workplaces.

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PREFACE

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1.0 INTRODUCTION TO THE GUIDELINE

1.1 OBJECTIVE

This document outlines the PETRONAS requirements on Health Surveillance activities in its workplaces.

1.2 SCOPE

This document contains general information on PETRONAS Health Surveillance requirements and covers the following:-

- Requirements on Health Surveillance and Health Surveillance program
- The processes and procedures involved in the conduct of Health Surveillance
- Health Surveillance records and reporting
- Medial Removal Protection (MRP) requirements and procedures
- Health surveillance requirements and procedures for selected health hazards

1.3 APPLICABILITY

This document applies to all PETRONAS operations and employees, including those of its contractors' personnel working in its workplaces and premises. Where applicable local laws and regulations are available, application of this document shall be limited to those requirements that are permitted by such laws and regulations.

1.4 RESPONSIBILITY

Group HSE Division is the custodian of this document and shall be responsible to periodically review and revise its contents and distribute the revised document to all HCU/OPU and JV.

HCU/ OPU/ JV HSE department or focal point shall be responsible to communicate the requirements under this Guideline and any updates to all HCU/ OPU/ JV staff and develop workplace specific Health Surveillance procedures if appropriate.

1.5 DEFINITIONS

Please refer to Appendix A – List of Abbreviations and Definitions

1.6 LANGUAGE

PETRONAS HCU, OPU and JV companies are separate and distinct entities. In this document the collective expressions "PETRONAS" and "Group" are sometimes used interchangeably for convenience where reference is made to the companies in general.

The following terms carry the meanings:

- | | |
|-----------------|---|
| "Shall" | Mandatory action required. Deviation shall require approval from PETRONAS Management. |
| "Should" | Preferred or obligatory action required. Deviation shall require prior approval from HCU/ OPU/ JV Management. |
| "May" | Recommended action. |

1.7 LIABILITY AND INDEMNITY

This document contains information on good Occupational Health management practices with reference to sources believed to be reliable. PETRONAS and its subsidiaries, jointly and severally, make no guarantee and assume no liability in connection with any of the referenced information.

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1.8 LIST OF REFERENCES

1. PTS 60.1400.01 Health Risk Assessment, *May 2010*
2. PTS 60.1501.06 Guideline on Health Assessment for Fitness To Work, *January 2010*
3. PTS 60.1502 Chemical Management Program, *December 2010*
4. PTS 60.1502.01 Benzene, *June 2006*
5. PTS 60.1502.02 Asbestos, *January 2010*
6. PTS 60.1504 Hearing Conservation Programme, *August 2007*
7. PTS 60.1000 Occupational Health Management, *June 2006*
8. PTS 60.0501 Incident Classification, Investigation and Reporting, *June 2010*
9. Malaysia Act 514 – Occupational Safety & Health Act, 1994 (OSHA 1994)
10. OSHA 1994, Use and Standards Of Exposure Of Chemicals Hazardous To Health Regulations 2000.
11. Malaysia Act 139, Factories and Machinery (Noise Exposure) Regulations, 1989.
12. ACGIH Guidelines, standards and reports
13. OSHA (USA) guidelines and standards
14. DOSH Guidelines on Medical Surveillance, 2001

2.0 HEALTH SURVEILLANCE

2.1 INTRODUCTION

A workplace may expose a worker to health risks associated with health hazards present therein. Depending on the hazard, exposure level and effectiveness of protective measures, the worker may develop over time health problems associated with the hazards.

To prevent these risks, workers' exposure to the hazards must be eliminated or minimized to as low as reasonably practicable (ALARP). In most cases, engineering and administrative controls suffice to ensure protection of the workers from these health hazards.

In some instances, especially those involving hazardous material like carcinogens, even these controls may not be adequate to protect the exposed workers.

In such instances, the workers need periodic monitoring on their health to ensure early detection of health risk from the exposure and interventional measures are taken to protect them from serious consequences associated with the health risk. The monitoring of workers' health for the above purpose is known as health surveillance.

2.2 DEFINITION

Health Surveillance is a process where a worker's exposure to health hazards in a workplace is monitored and the data gathered analyzed to detect health related problems arising from such exposure.

2.3 OBJECTIVE OF HEALTH SURVEILLANCE

Health Surveillance is required for the following:

1. Timely detection of medical conditions arising from a worker's exposure to known health hazards at his workplace.
2. To determine the effectiveness of control measures put in place to protect the worker from unacceptable exposure to health hazards at the workplace.

2.4 RATIONALE FOR HEALTH SURVEILLANCE

Health Surveillance is required for selected workers despite engineering and administrative controls put in, because:

- A minority of workers may be susceptible to workplace health hazards that are within normal limits of PEL / TLV.

- Workers exposures to the health hazards are often modified by other factors such as their lifestyles.
- Some health hazards may accumulate in the body and cause problems only after repeated exposures over a period of time.
- Risks from health hazards may be severe and may cause irreversible occupational illnesses.
- Fatalities or serious consequences of occupational illnesses can be prevented or minimize if detected and managed early.
- Compliance to applicable laws and regulations.

2.5 SCOPE OF HEALTH SURVEILLANCE

This Guideline described the two main processes of Health Surveillance:

1. Biological Monitoring and Biological Effects Monitoring
2. Medical Examination

The processes described are applicable to all known chemicals, physical, and biological health hazards within PETRONAS workplaces.

For exposure to some other health risks such as manual handling, work-related upper limb disorders, work that might give rise to stress-related diseases and symptoms from whole body vibration, there are no specific legal requirements for health surveillance. This is mainly because valid ways to detect ill health do not exist yet and/or the link between work and the ill health condition is uncertain. In these cases, use other methods to monitor the health of employees exposed to these risks, such as encouraging symptom reporting and checking sickness records.

2.6 HEALTH SURVEILLANCE CRITERIA

Health surveillance shall be required for the following employees:

1. Have exposure to continuous noise levels exceeding 85 dBA in an 8 hour time weighted average (TWA) exposure.
2. Have exposure to blood borne pathogens (HIV, Hepatitis B, C viruses, etc).
3. Have exposure to radioactive emission/ material.
4. Have exposure to asbestos above the permissible limit for 30 days/year OR perform Class I, II and III (refer Appendix A) asbestos-works for 30 days/year.
5. Have exposure to Vinyl Chloride above the action level.

6. Have exposure to inorganic Arsenic above the action level for at least 30 days/year and based on previous exposure.
7. Have exposure to inorganic or organic Lead above the action level for greater than 30 days/year
8. Have exposure to Benzene above the action level for greater than 30 days/year. Exposure through the skin should also be considered.
9. Have exposure to inorganic and/or organic mercury above the action level.
10. Use 1,2 - Dibromo-3-Chloropropane, working in a regulated area or may be exposed in an emergency situation
11. Have exposure to Acrylonitrile above the action level
12. Have exposure to Ethylene Oxide at or above the action for at least 30 days/year
13. Have exposure to Formaldehyde greater than the action level or greater than the short term exposure limit.
14. Have exposure to Methylenedianiline greater than or equal to the action level for 30 days/year.
15. Have exposure to Cadmium greater than or equal to the action level for 30 days/year.
16. Have exposure to any of the known (IARC Class1) human carcinogens
17. Have exposure to the following substances above their respective action levels:
 - Auramine
 - Carbon disulphide
 - Carbon tetrachloride
 - Dianisidine
 - Dichlorobenzidine
 - Disulphur dichloride
 - Hexavalent chromium compound
 - Nitro or amino derivatives of phenol and of Benzene or its homologues
 - N-Hexane
 - Organophosphate
 - Orthotholidine
 - Pitch

- Potassium or sodium chromate or dichromate
- Silica
- Trichloroethylene

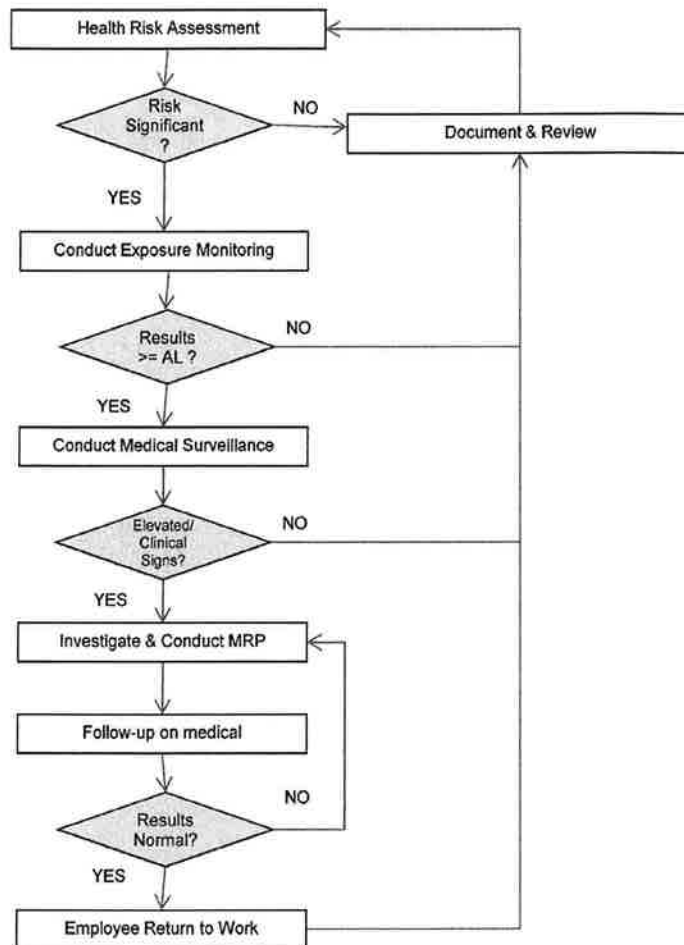
2.7 ACTION LEVEL

Refers to the amount of a hazard (any of the hazards listed in 2.6 above) present in the working environment or received by the workers during specified working period that shall require the workers to be placed in Health Surveillance program for such hazard.

Unless specified, action level usually equals to the PEL of the hazard.

2.8 HEALTH SURVEILLANCE PROCESS

For selected hazards common within PETRONAS workplaces, details on their health surveillance Health Surveillance processes are outlined under Appendix B, C and D. Health Surveillance process is described in the chart below.



2.8.1 Health Risk Assessment (HRA)

Health Risk Assessment (HRA) as per PTS 60.1400.01, is a qualitative assessment, used to estimate the risk to health hazards in the workplace. It shall be carried out to determine the next steps in health risk management.