



**ACT Health**

# Health Monitoring to Protect Workers from Harmful Exposures Procedure

<b>Document number</b>	<b>AHDPD-64:2021</b>
<b>Effective date</b>	22 March 2022
<b>Review date</b>	22 March 2025
<b>Author branch</b>	People Strategy and Culture
<b>Endorsed by</b>	Corporate, Governance and Finance Committee
<b>Audience</b>	Managers and workers
<b>Version number</b>	1.1

# Contents

Purpose .....	1
Objectives.....	1
Roles and Responsibilities.....	2
Procedure.....	3
Determining health monitoring requirements for hazardous chemicals.....	3
Allergy health monitoring .....	4
Ionising radiation health monitoring.....	5
Audiometric testing .....	5
When health monitoring is provided.....	6
Where health monitoring is not undertaken.....	6
Designing health monitoring assessments .....	6
Responses to health monitoring report .....	7
Consultation.....	7
Records Management.....	7
Related Documents.....	8
Definitions.....	9
Search Terms.....	9
Version Control .....	10
Attachment A – List of Specified Hazardous Chemicals (Schedule 14, table 14.1 of the WHS Regulation).....	11
Attachment B – Additional List of Hazardous Chemicals for Health Monitoring.....	14
Attachment C – Occupational dose Limits for Ionising Radiation .....	18
Attachment D – Noise exposure standards .....	19
Explanation .....	20

# Purpose

The purpose of this document is to inform ACT Health Directorate (ACTHD) managers and workers about the requirements for health monitoring for workers. This procedure supports the Work Health and Safety (WHS) Guideline.

Health monitoring means monitoring the health of a worker to identify changes in their health status as a result of the potential of the cumulative exposure to a hazard (for example hearing loss or illnesses caused by hazardous chemicals) and where a valid method for measuring the impact of the exposure on the health of a worker exists.

Health monitoring includes:

- the collection of information to measure/assess the exposure, and
- evaluating the effects of exposure, to determine whether or not the exposure is within safe levels.

Positions in ACTHD generally do not require an employee to meet a specified health or medical standard. This procedure does not apply to the arrangements to test the health or medical standard of a person where it is a condition of employment.

While all workers are required to comply with ACTHD WHS policies, guidelines and procedures, no worker will be required to undergo health monitoring without their informed consent.

This procedure is based on, and uses, material from the relevant WHS Codes of Practice, accessed from the [ACT Legislation Register](#), and Safe Work Australia guidance material. For the latest information on ACT legislation see <https://www.legislation.act.gov.au/>. Codes of Practice are designed to be used by duty holders to implement WHS legislation.

# Objectives

ACTHD will:

- inform workers and prospective workers about health monitoring requirements,
- ensure health monitoring is carried out by or under the supervision of medical service providers with experience in health monitoring
- consult workers in relation to the selection of the medical service providers
- pay all expenses relating to health monitoring
- provide information about the possible exposures experienced by a worker to the medical service providers for the health monitoring assessment
- maintain the confidentiality of health monitoring records in accordance with legislation, and
- consult with workers and use health monitoring to make decisions about implementing ways to eliminate or minimise the worker's risk of exposure.

# Roles and Responsibilities

Position	Responsibilities
Director-General and Deputy Directors General, who are officers in accordance with the WHS Act.	<ul style="list-style-type: none"> <li>• Ensure that ACTHD applies appropriate resources and equipment to:               <ul style="list-style-type: none"> <li>○ ensure that health monitoring is available, and</li> <li>○ comply with the WHS Act and WHS Regulation.</li> </ul> </li> </ul>
Managers	<ul style="list-style-type: none"> <li>• Consult with workers and ensure that they understand the hazards that they are exposed to.</li> <li>• Ensure that air monitoring is undertaken if a hazard chemical exposure could exceed the exposure standard.</li> <li>• Ensure that noise monitoring is undertaken where workers could be exposed to noise levels that are above the exposure standard.</li> <li>• Maintain the health monitoring schedule, including providing resources, funding and providing time.</li> <li>• Exercise financial delegations for the health monitoring program.</li> <li>• Consult with the worker about the results of the health monitoring report and the action that will be taken to ensure their health and safety.</li> </ul>
People Strategy and Culture Branch	<ul style="list-style-type: none"> <li>• Develop and review the ACTHD WHS management system<sup>1</sup> and provide information about WHS requirements.</li> <li>• Support managers to implement and maintain the health monitoring program.</li> <li>• Maintain records of an individual employee's health monitoring results.</li> </ul>
Medical Service Providers (that provide registered medical practitioners or other health professionals to undertake health monitoring)	<ul style="list-style-type: none"> <li>• Provide advice to ACTHD about the requirements for health monitoring based on the identified exposures.</li> <li>• Undertake health monitoring and maintain confidential records.</li> <li>• Provide information to workers about health monitoring outcomes.</li> <li>• Ensure that informed consent is received for all medical procedures.</li> </ul>
Radiation Safety Officer	<ul style="list-style-type: none"> <li>• Monitor the radiation management plans.</li> <li>• Provide advice on:               <ul style="list-style-type: none"> <li>○ radiation safety</li> <li>○ radiation monitoring, and</li> <li>○ health monitoring for radiation exposure.</li> </ul> </li> </ul>

<sup>1</sup> Information about the WHS management system is available in section 1 of the WHS Guideline.

Position	Responsibilities
Workers	<ul style="list-style-type: none"> <li>• Follow safety procedures and instructions.</li> <li>• Report any symptoms that might be an indication of exposure to a hazard (such as a hazardous chemical, allergen or noise).</li> <li>• Co-operate with health monitoring programs, within the context of informed consent.</li> <li>• Consult with the ACTHD and managers about the results of the health monitoring report and the action that will be taken to ensure their health and safety.</li> </ul>

## Procedure

### Determining health monitoring requirements for hazardous chemicals

The risk controls for hazardous chemicals are required to keep the airborne concentration to well below the exposure standard.

If the risk controls do not reduce the exposure to workers, air monitoring may be required. For airborne contaminants, air monitoring involves the sampling of workplace atmospheres to establish a quantitative measure of exposure to hazardous chemicals through inhalation. The result is then compared to the Workplace Exposure Standards for Airborne Contaminants to assess if the exposure is above the recommended threshold.

Workers who use, handle or store specific hazardous chemicals where there is a significant risk to the worker's health because of exposure to a hazardous chemical (listed in Schedule 14, table 14.1 of the WHS Regulation) must be provided with health monitoring. The hazardous chemicals are listed in [Attachment A](#).

Health monitoring will be provided if there is a significant risk that the worker will be exposed to a hazardous chemical (other than a hazardous chemical referred to in Schedule 14, table 14.1 of the WHS Regulation) and either:

- valid techniques are available to detect the effect on the worker's health, or
- a valid way of determining biological exposure to the hazardous chemical is available and it is uncertain, on reasonable grounds, whether the exposure to the hazardous chemical has resulted in the biological exposure standard being exceeded.

Schedule 14, table 14.1 ([Attachment A](#)) includes the type of health monitoring that must be carried out for each hazardous chemical listed, *unless*:

- an equal or better type of health monitoring is available, and
- the use of that other type of monitoring is recommended by a registered medical practitioner with experience in health monitoring.

Attachment B provides a list of hazardous chemicals and their testing methods, which are not listed in Schedule 14 WHS Regulation but should also be considered for a health monitoring program.

Hearing testing will be undertaken for workers where the airborne exposure to ototoxic substances is greater than 50 per cent of the workplace exposure standard for the substance (without regard to respiratory protection worn), regardless of the noise level [*Work Health and Safety (Managing Noise and Preventing Hearing Loss at Work Code of Practice) Approval 2020*].

The WHS Regulation also contains specific requirements relating to health monitoring for lead risk work and asbestos. Health monitoring is required for a worker if they are carrying out asbestos-related work and the worker is at risk of exposure to asbestos or where lead risk work is undertaken.

The asbestos health monitoring will include:

- consideration of the worker's demographic, medical and occupational history
- the records of the worker's personal exposure, and
- a physical examination of the worker.

The health monitoring of lead risk work will be undertaken in accordance with the Health Monitoring Guide for Lead - Inorganic (Safe Work Australia).

## Clandestine laboratory health monitoring

Workers involved in clandestine drug laboratory investigations, from the ACT Government Analytical Laboratory (ACTGAL), will undergo medical monitoring as a result of the risk of exposure to hazardous chemicals during a clandestine drug laboratory investigation (either annually or after exposure).

## Types of health monitoring for hazardous chemicals

Health monitoring for exposure to hazardous chemicals includes:

- **Base line monitoring** - to be conducted prior to a worker's exposure to a hazardous chemical. This provides a base line from which effects on a worker's health can be compared.
- **Exposure recording** - following exposure worker may be required to record any exposures or potential exposures.
- **Health monitoring** - following any significant or ongoing exposure, or if the worker experiences symptoms.

## Allergy health monitoring

Workers who work regularly with laboratory animals are exposed to allergens and in the form of hair, urinary proteins, faeces and ectoparasites. Some workers may have an increased level of susceptibility or hypersensitivity with extended periods of exposure.

Health monitoring will be undertaken where a risk assessment identified a requirement, including for workers who have allergic symptoms. The health monitoring may include testing for allergen-specific responses or antibodies.

## Ionising radiation health monitoring

The type and degree of monitoring required for workers exposed to ionising radiation depends on their level of exposure. Both workplace monitoring and individual monitoring may be used.

Radiation management plans (RMP) will detail how exposures to both workers and the public will be kept below established dose limits and **as low as reasonably achievable** (ALARA). The RMP will also include disposal considerations and should include processes and procedures for dealing with incidents, accidents and emergency response.

The aim of personal monitoring is to ensure that the doses received by the individual are kept within specified exposure limits (refer [Attachment C](#)). Personal radiation monitoring is required for any worker who is likely to be exposed to ionizing radiation in excess of 1 mSv (millisievert) in any one year<sup>2</sup>.

The Radiation Safety Officer will:

- specify the radiation monitoring equipment that is available to workers in laboratories where radioactive substances or sources of ionizing radiation are used (Note: If high activity sources (sealed or unsealed), or irradiating apparatus could give rise to an external radiation hazard, a dose-rate monitor will be available)
- provide advice in respect of unsealed radionuclide work or irradiating apparatus about:
  - the type and characteristics of a radiation and contamination monitors required, and
  - whether a radiation monitor is required, and if so, the appropriate type.

The Radiation Safety Officer will identify when a worker requires a health assessment as a result of their exposure to ionising radiation.

## Audiometric testing

Audiometric testing is a form of health monitoring that is required for a worker who is required to frequently use personal hearing protectors as a control measure for noise that exceeds the exposure standard. Refer to [Attachment D](#) for information on the noise exposure standards.

---

<sup>2</sup> <https://www.health.act.gov.au/businesses/radiation-safety>

Workers who are required to use personal hearing protectors as a control measure for noise that exceeds the exposure standard will be offered a health monitoring program as part of the risk management process. Audiometric testing will be provided within three months of the worker commencing work where hearing protection is required, and at least every two years. More frequent audiometric testing may be needed if exposures are at a high LAeq,8h, which is equal to or greater than 100 dB(A). Where audiometric testing is required, it will be performed by an Audiologist.

## When health monitoring is provided

Health monitoring will be provided based on the specific exposures and may take place:

- before commencing work with the hazardous chemical, substance or thing – to provide a baseline which will be a reference for comparison with later test results
- during periods of exposure to the hazardous chemical, substance or thing, particularly where excessive exposure occurs, for example after a spill or loss of containment
- where the worker has concerns that may relate to exposure to the hazardous chemical, substance or thing, for example where relevant symptoms are identified, or
- when a worker ceased to work with a hazardous chemical, substance or thing.

## Where health monitoring is not undertaken

Where a worker declines the offer for a health monitoring assessment, ACTHD cannot verify that there has not been any health impact on the worker. If this occurs ACTHD will consult with the worker about the:

- identified exposures that led to the recommendation for health monitoring, and
- action that will be taken to ensure their health and safety (such as changes in job design, tasks, procedures and/or personal protective equipment).

## Designing health monitoring assessments

The process for determining the health monitoring assessment starts with the identification of the chemicals, substances or things that triggered the requirement for the assessment, including the:

- information about the exposure
- how long the worker has carried out that work, and
- when they last had contact with the chemical, substance or thing.

Health monitoring assessments involve a registered medical practitioner (or an specialist practitioner such as an audiologist) using standard clinical and medical assessments, tests and techniques to assess the presence of early or long-term health effects. It can include an assessment of medical history, occupational and previous exposure history, blood tests and a clinical examination. This can also include tests like spirometry (for testing lung function)



and radiography. All medical procedures associated with health monitoring must be undertaken with informed consent.

## Responses to health monitoring report

Health monitoring allows decisions to be made about implementing ways to eliminate or minimise the worker's risk of exposure, for example reassigning a worker to other duties that involve less exposure or improving control measures.

Health monitoring is not an alternative to implementing control measures. Health monitoring is a way of identifying if control measures are effective. If the results of health monitoring indicate that a worker is experiencing adverse health effects or signs of exposure to a hazardous chemical, the control measures must be reviewed and if necessary revised.

ACTHD will:

- provide a copy of the health monitoring assessment to the worker and their medical practitioner (with their consent) so that their medical practitioner can explain the results of the assessment, as soon as practicable after obtaining the report
- provide a copy of the health monitoring assessment (in respect of exposure to hazardous chemical/s) to WorkSafe ACT if the report contains test result that indicate the worker may have contracted a disease, injury or illness or recommends remedial measures should be taken as a result of the work that triggered the requirement for health monitoring (in accordance with WHS Regulation 376)
- consult with the worker [and their medical practitioner (with their consent)] about the results of the health monitoring assessment and the action that will be taken to ensure their health and safety, and
- not disclose the health monitoring assessment to anyone without the worker's written consent unless required under the WHS Regulation or in accordance with the *Information Privacy Act 2014*.

## Consultation

Consultation about health monitoring will be undertaken in accordance with the ACTHD communication, consultation and co-operation arrangements<sup>3</sup> through:

- WHS committees
- health and safety representatives, and
- workers in business units.

## Records Management

Business units and managers are required to maintain health monitoring procedure and tracking records (such as the schedule of health monitoring assessments) as a corporate record. People Strategy and Culture Branch will retain the individual health monitoring

---

<sup>3</sup> Refer to section 3 of the WHS Guideline.

assessment in an approved and secure records management system, as part the employee's human resources records.

WHS records must be retained in accordance with the Territory retention and disposal schedule. Records of risk assessments that determine that health monitoring is required, air monitoring and health monitoring reports must be retained for 75 years after the worker's date of birth.

## Related Documents

### Legislation

- [Radiation Protection Act 2006](#)
- [Work Health and Safety Act 2011](#)
- [Work Health and Safety Regulation 2011](#)
- [Health Records \(Privacy and Access\) 1997](#)
- [Information Privacy Act 2014](#)
- [Territory Records Act 2002](#)

### Codes of Practice

- [Code for Radiation Protection in Planned Exposure Situations \(2016\) \(ARPANSA\)](#)
- [Work Health and Safety \(How to Manage and Control Asbestos in the Workplace Code of Practice\) Approval 2022](#)
- [Work Health and Safety \(Managing Risks of Hazardous Chemicals in the Workplace Code of Practice\) Approval 2022](#)
- [Work Health and Safety \(Workplace Exposure Standards\) Declaration 2020 \(No 1\)](#)
- [Work Health and Safety \(Managing Noise and Preventing Hearing Loss at Work\) Code of Practice Approval 2022](#)

### Australian Standards

- AS/NZS 1269.4:2014 - Occupational noise management – Auditory assessment
- AS/NZS 2243.3:2010 - Safety in Laboratories – Microbiocidal safety and containment

### Supporting Documents

- [Work Health and Safety Policy](#)
- [Work Health and Safety Guideline](#)
- [Hazardous Chemical Procedure](#)
- [Health Monitoring Guide for Lead - Inorganic \(Safe Work Australia\)](#)
- [Radiation Safety Management Procedure](#)
- [Safe Work Australia Health Monitoring Guides](#)
- ACTHD [records management policies and procedures](#)
- [Territory Records \(Records Disposal Schedule – Territory Administrative Records Disposal Schedules – Occupational Health & Safety \(OH&S\) Records Approval 2009 \(No.1\)](#)

# Definitions

Term	Definition
Audiologist	A person recognised by Audiology Australia as an Accredited Audiologist
Asbestos related work	Work involving asbestos (other than asbestos removal work to which Part 8.7 of the WHS Regulation applies) that is permitted under the exceptions set out in WHS regulation 419(3), (4) and (5).
Hazardous chemical	Any substance, mixture or article that satisfies the criteria of one or more GHS hazard classes, including a classification in Schedule 6 of the WHS Regulation.
Health monitoring	<p>Means monitoring the worker to identify changes in their health status because of exposure to hazards that can have a cumulative impact on a person's health, and where a valid method for measuring the impact of the exposure on the health of a worker exists.</p> <p>It involves the collection of data to measure exposure or evaluate the effects of exposure and to determine whether or not the exposure is within safe levels.</p> <p>It includes the health monitoring requirements for exposure to:</p> <ul style="list-style-type: none"> <li>• a hazardous chemical (including those listed in Schedule 14, table 14.1 of the WHS Regulation)</li> <li>• noise that requires hearing protection</li> <li>• ionizing radiation</li> <li>• lead risk work</li> <li>• asbestos, and</li> <li>• animal allergens.</li> </ul>
Ionizing Radiation	<p>Radiation that is capable of producing ions directly or indirectly and is either:</p> <ul style="list-style-type: none"> <li>• particulate radiation, or</li> <li>• electromagnetic radiation of a wavelength of 100 nanometres or less.</li> </ul>
Lead risk work	<p>Work carried out in a lead process that is likely to cause the blood level of a worker carrying out the work to exceed:</p> <ul style="list-style-type: none"> <li>• 5 µg/dL (0.24 µmol/L) for females of reproductive capacity, and</li> <li>• 20 µg/dL (0.97 µmol/L) for all other workers.</li> </ul>
Registered Medical Practitioner	A person who holds a registration as a medical practitioner (Refer to the Medical Board of Australia).
Risk	Is the possibility that harm (death, injury or illness) might occur when exposed to a hazard.

## Search Terms

Health monitoring / asbestos / radiation monitoring / noise / audiometry.

# Version Control

Version	Date	Comments
1.0	22 March 2022	First version
1.1	1 August 2023	Extension

**Disclaimer:** *This document has been developed by the ACT Health Directorate specifically for its own use. Use of this document and any reliance on the information contained therein by any third party is at his or her own risk and the ACT Health Directorate assumes no responsibility whatsoever.*

## Attachment A – List of Specified Hazardous Chemicals (Schedule 14, table 14.1 of the WHS Regulation)

Hazardous Chemical	Type of health monitoring
<b>Acrylonitrile</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Records of personal exposure</li> <li>• Physical examination</li> </ul>
<b>Arsenic (inorganic)</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Records of personal exposure</li> <li>• Physical examination with emphasis on the peripheral nervous system and skin</li> <li>• Urinary inorganic arsenic</li> </ul>
<b>Benzene</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Records of personal exposure</li> <li>• Physical examination</li> <li>• Baseline blood sample for haematological profile</li> </ul>
<b>Cadmium</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Records of personal exposure</li> <li>• Physical examination with emphasis on the respiratory system</li> <li>• Standard respiratory questionnaire to be completed</li> <li>• Standardised respiratory function tests including for example, FEV1, FVC and FEV1/FVC</li> <li>• Urinary cadmium and <math>\beta</math>2-microglobulin</li> <li>• Health advice, including counselling on the effect of smoking on cadmium exposure</li> </ul>
<b>Chromium (inorganic)</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Physical examination with emphasis on the respiratory system and skin</li> <li>• Weekly skin inspection of hands and forearms by a competent person</li> </ul>

Hazardous Chemical	Type of health monitoring
<b>Creosote</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Health advice, including recognition of photosensitivity and skin changes</li> <li>• Physical examination with emphasis on the neurological system and skin, noting any abnormal lesions and evidence of skin sensitisation</li> <li>• Records of personal exposure, including photosensitivity</li> </ul>
<b>Crystalline silica</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Records of personal exposure</li> <li>• Standardised respiratory questionnaire to be completed</li> <li>• Standardised respiratory function test, for example, FEV<sub>1</sub>, FVC and FEV<sub>1</sub>/FVC</li> <li>• Chest X-ray full size PA view</li> </ul>
<b>Isocyanates</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Completion of a standardised respiratory questionnaire</li> <li>• Physical examination of the respiratory system and skin</li> <li>• Standardised respiratory function tests, for example, FEV<sub>1</sub>, FVC and FEV<sub>1</sub>/FVC</li> </ul>
<b>Mercury (inorganic)</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Physical examination with emphasis on dermatological, gastrointestinal, neurological and renal systems</li> <li>• Urinary inorganic mercury</li> </ul>
<b>4,4'-Methylene bis (2-chloroaniline) (MOCA)</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Physical examination</li> <li>• Urinary total MOCA</li> <li>• Dipstick analysis of urine for haematuria</li> <li>• Urine cytology</li> </ul>
<b>Organophosphate pesticides</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history including pattern of use</li> <li>• Physical examination</li> <li>• Baseline estimation of red cell and plasma cholinesterase activity levels by the Ellman or equivalent method</li> <li>• Estimation of red cell and plasma cholinesterase activity towards the end of the working day on which organophosphate pesticides have been used</li> </ul>

Hazardous Chemical	Type of health monitoring
<b>Pentachlorophenol (PCP)</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Records of personal exposure</li> <li>• Physical examination with emphasis on the skin, noting any abnormal lesions or effects of irritancy</li> <li>• Urinary total pentachlorophenol</li> <li>• Dipstick urinalysis for haematuria and proteinuria</li> </ul>
<b>Polycyclic aromatic hydrocarbons (PAH)</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Physical examination</li> <li>• Records of personal exposure, including photosensitivity</li> <li>• Health advice, including recognition of photosensitivity and skin changes</li> </ul>
<b>Thallium</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Physical examination</li> <li>• Urinary thallium</li> </ul>
<b>Vinyl chloride</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Physical examination</li> <li>• Records of personal exposure</li> </ul>

# Attachment B – Additional List of Hazardous Chemicals for Health Monitoring

Hazardous chemical	Type of health monitoring
<b>Antimony</b>	<ul style="list-style-type: none"><li>• Demographic, medical and occupational history</li><li>• Records of personal exposure</li><li>• Physical examination with emphasis on the respiratory system and skin</li><li>• Urinary antimony level</li></ul>
<b>Arsenic (inorganic)</b>	<ul style="list-style-type: none"><li>• Extra: Urinary inorganic arsenic by speciation (inorganic arsenic plus methylated metabolites)</li></ul>
<b>Benzene</b>	<ul style="list-style-type: none"><li>• Extra: Urinary S-phenylmercapturic acid (s-PMA)</li></ul>
<b>Beryllium</b>	<ul style="list-style-type: none"><li>• Demographic, medical and occupational history</li><li>• Records of personal exposure</li><li>• Physical examination with emphasis on respiratory and dermatological systems</li><li>• Urinary beryllium level</li></ul>
<b>Butanone (methyl ethyl ketone, MEK)</b>	<ul style="list-style-type: none"><li>• Demographic, medical and occupational history</li><li>• Physical examination with emphasis on the central nervous system and skin</li><li>• Urinary MEK (2-butanone) level</li></ul>
<b>Carbon disulfide</b>	<ul style="list-style-type: none"><li>• Demographic, medical and occupational history</li><li>• Physical examination with emphasis on the respiratory system and skin</li><li>• Urinary 2-thiothiazolidine-4-carboxylic acid level</li></ul>
<b>Chromium (inorganic)</b>	<ul style="list-style-type: none"><li>• Extra: Urinary chromium</li></ul>



Hazardous chemical	Type of health monitoring
<b>Cobalt</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Physical examination with emphasis on respiratory systems and skin</li> <li>• Urinary cobalt level</li> </ul>
<b>Creosote</b>	<ul style="list-style-type: none"> <li>• Extra: Urinary 1-hydroxypyrene</li> </ul>
<b>Cyclophosphamide</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Urinary cyclophosphamide level</li> </ul>
<b>Dichloromethane</b>	<ul style="list-style-type: none"> <li>• Collecting demographic, medical and occupational history</li> <li>• Physical examination with emphasis on the central nervous system</li> <li>• Urinary dichloromethane</li> </ul>
<b>Ethyl benzene</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Records of personal exposure</li> <li>• Physical examination</li> <li>• Baseline blood sample for haematological profile</li> <li>• Urinary mandelic acid level</li> </ul>
<b>Fluorides (including soluble fluorides and aluminium fluoride)</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Physical examination with emphasis on the respiratory system</li> <li>• Pre and post shift urinary fluoride level</li> </ul>
<b>Isocyanates</b>	<ul style="list-style-type: none"> <li>• Extra: Urinary isocyanate metabolites</li> </ul>
<b>4-methylpentan-2-one (methyl isobutyl ketone) MIBK</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Physical examination with emphasis on the respiratory system and skin</li> <li>• Urinary MIBK level</li> </ul>

Hazardous chemical	Type of health monitoring
<b>Nickel</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Physical examination with emphasis on dermatological and respiratory systems</li> <li>• Urinary nickel level</li> </ul>
<b>Organophosphate pesticides</b>	<ul style="list-style-type: none"> <li>• Extra: Urinary organophosphate metabolites</li> </ul>
<b>Polycyclic aromatic hydrocarbons (PAH)</b>	<ul style="list-style-type: none"> <li>• Extra: Urinary 1-hydroxypyrene</li> </ul>
<b>Styrene</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Records of personal exposure</li> <li>• Physical examination</li> <li>• Baseline blood sample for haematological profile</li> <li>• Urinary mandelic acid</li> </ul>
<b>Tetrachloroethylene (perchloroethylene)</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Physical examination with emphasis on the central nervous, respiratory and reproductive systems and skin</li> <li>• Tetrachloroethylene blood level before shift</li> </ul>
<b>Toluene</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Records of personal exposure</li> <li>• Physical examination</li> <li>• Baseline blood sample for haematological profile</li> <li>• Urinary o-cresol</li> </ul>
<b>Trichloroethylene</b>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Physical examination with emphasis on the central nervous system</li> <li>• Urinary trichloroacetic acid or trichloroethane level</li> </ul>
<b>Vinyl chloride</b>	<ul style="list-style-type: none"> <li>• Extra: Annual liver function tests (AST, ALT, GGT, ALP, and bilirubin)</li> </ul>

Hazardous chemical	Type of health monitoring
<p><b>Uranium</b></p>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Physical examination</li> <li>• Post shift urinary uranium level</li> <li>• Urinary dipstick analysis for proteinuria</li> <li>• Urinary cytology</li> </ul>
<p><b>Xylene</b></p>	<ul style="list-style-type: none"> <li>• Demographic, medical and occupational history</li> <li>• Records of personal exposure</li> <li>• Physical examination</li> <li>• Baseline blood sample for haematological profile</li> <li>• Urinary toluric acid</li> </ul>

## Attachment C – Occupational dose Limits for Ionising Radiation

Type of limit	Limit (18 years and over)
Effective dose	20 mSv per year, averaged over a period of five consecutive years
Annual equivalent dose to the lens of the eye	20 mSv per year, averaged over a period of five consecutive years
Annual equivalent dose to the skin	500 mSv per year
Annual equivalent dose to the hands and feet	500 mSv per year

Source: <https://www.arpansa.gov.au/sites/default/files/legacy/pubs/rps/rpsc-1.pdf>

## Attachment D – Noise exposure standards

The WHS Regulation sets the exposure standard for noise at an LAeq,8h of 85 dB(A) and a peak noise level at 140 dB(C), which protects most, but not all people. There is a wide range in different people's susceptibility to hearing loss from noise. Research shows that LAeq,8h below 75 dB(A) or instantaneous peak noise levels below 130 dB(C) are unlikely to cause hearing loss. With progressively increasing levels, the risk becomes greater. Workplace noise should be kept lower than the exposure standard, where reasonably practicable.

Peak noise levels greater than 140 dB(C) can occur with impact or explosive noise such as sledge-hammering or a gun shot. Any exposure above this peak can cause almost instant damage to hearing.

The table below provides examples of the length of time a person without hearing protection can be exposed before the standard (LAeq,8h = 85 dB(A)) is exceeded.

Noise level dB(A)	Exposure time before the standard is exceeded
80	16 hours <sup>4</sup> (Example - heavy kerbside traffic)
82	12 hours
85	8 hours
88	4 hours
91	2 hours (Example – lawnmower)
94	1 hour
97	30 minutes
100	15 minutes
103	7 minutes 30 seconds
106	3 minutes 48 seconds

<sup>4</sup> LAeq,8h means the eight-hour equivalent continuous A-weighted sound pressure level in decibels (dB(A)) referenced to 20 micropascals; determined in accordance with AS/NZS 1269.1–2005: Occupational noise management—Measurement and assessment of noise immission and exposure.

Noise level dB (A)	Exposure time before the standard is exceeded
109	1 minute 54 seconds
112	57 seconds (Example – petrol powered chainsaw)
115	28.8 seconds
118	14.4 seconds
121	7.2 seconds
124	3.6 seconds
127	1.8 second
130	0.9 second
140	Peak noise level

## Explanation

Whether the exposure standard (85 dB(A) averaged over eight hours) is exceeded depends on the level of noise involved and how long workers are exposed to it. The Decibel (dB) scale is logarithmic. An increase of 3 dB represents a doubling of sound energy. This means that every 3 dB increase in noise level can cause the same damage in half the time.

A worker who is exposed to 85 dB(A) for eight hours receives the same noise energy as someone exposed to 88 dB(A) for four hours, with the balance of the day in a very quiet environment.

In both cases the exposure standard is not being exceeded. However, being exposed to 88 dB(A) for more than four hours would mean that the standard is exceeded.

If a worker is exposed to 121 dB(A) then the exposure standard would be exceeded after only 7.2 seconds.