Health monitoring

Guide for uranium





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Introduction

This guide is intended to be read by a registered medical practitioner with experience in health monitoring who is engaged by person conducting a business or undertaking (PCBU) to carry out or supervise health monitoring. It provides practical guidance to registered medical practitioners about requirements under the work health and safety (WHS) laws for health monitoring.

This guide applies to all workplaces covered by the WHS Regulations where health monitoring is required.

**How to use this guide**

This guide includes references to the legal requirements under the WHS Act and WHS Regulations. These are included for convenience only and should not be relied on in place of the full text of the WHS Act or WHS Regulations.

The words ‘must’, ‘requires’ or ‘mandatory’ indicate a legal requirement exists that must be complied with. The word ‘should’ is used in this guide to indicate a recommended course of action, while ‘may’ is used to indicate an optional course of action.

This guide provides information for those registered medical practitioners engaged by a PCBU to carry out or supervise health monitoring for workers. This guidance should be read in conjunction with the following:

* *Health monitoring guide for registered medical practitioners*
* *Health monitoring guides for hazardous chemicals*
* *Health monitoring guide for workers*
* *Health monitoring guide for persons conducting business or undertakings (PCBUs).*

**Health monitoring under the WHS Regulations**

In certain circumstances, the model WHS Regulations place duties on a PCBU to provide health monitoring to workers. These requirements arise if the worker is carrying out work with hazardous chemicals including lead and asbestos. In addition, the work being carried out must be the kind of work specified in the WHS Regulations. A PCBU has the duty to determine if health monitoring is required.

The WHS Regulations prescribe that health monitoring is carried out by or supervised by a registered medical practitioner with experience in health monitoring.

# Uranium

Uranium (CAS 7440-61-1) is a natural and commonly occurring radioactive element. It is found in very small amounts in nature in the form of minerals. Rocks, soil, surface and ground water all contain varying amounts of uranium.

There are at least 15 isotopes of uranium (U) with natural uranium comprising 99.3 per cent 238U, 0.7 per cent 235U and 0.005 per cent 234U, by mass. All of these isotopes are radioactive and have different radioactivity properties, but behave chemically the same.

**Work activities that may represent a high risk exposure**

Under the Work Health and Safety (WHS) Regulations, radioactive substances of any kind that exceed a level of radiation of 1 Bq/g are listed as restricted hazardous chemicals and must not be used for abrasive blasting at concentrations greater than 0.1 per cent without authorisation from a relevant WHS regulator.

Uranium is primarily used in nuclear power plants. After removal of the enriched fraction, it is referred to as depleted uranium that is used for the following:

* counterweights or ballast in aircraft
* radiation shields in medical equipment
* containers for the transportation of radioactive materials
* munitions designed to penetrate armour plate and reinforce military vehicles, such as tanks
* nuclear weapons
* photography toning
* stains and dyes in the leather, silk and wood industry, and
* manufacture of phosphate fertilizers.

Exposure to uranium may also occur in mining, milling and processing.

**Sources of non-occupational exposure**

Uranium is a naturally-occurring element that is present in soil, surface and ground water and in air. However, the most prominent non-workplace exposure risk is living within an area that contains uranium or living within the area of a nuclear reactor.

## Health monitoring for uranium under the WHS Regulations

Collection of demographic, medical and occupational history

Physical examination

Post shift urinary uranium level

Urinary dipstick analysis for proteinuria

Urinary cytology

Health monitoring under the WHS Regulations is applicable to uranium and its inorganic compounds. The toxic effects of uranium compounds are primarily attributed to the uranium ion. Hence, uranium and its compounds are considered to have a similar hazard and toxicity profile.

In this guide, uranium’ is used to refer to uranium and its compounds.

**NOTE:** Some forms of uranium may also present a radiation hazard that may require ongoing monitoring. Radiation dose and hazard monitoring is not covered by this guidance. For more information about monitoring of individuals for radiation exposure see guidance provided by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

Health monitoring before starting work in a uranium process

Health monitoring for uranium may be required before the worker starts work so that changes to the worker’s health can be detected including:

* collection of demographic, medical and occupational history
* urinary dipstick analysis for proteinuria, and
* initial discussions about a health monitoring program should include:
	+ possible health effects from exposure to uranium
	+ how to recognise and report symptoms, and
	+ what is involved in the health monitoring program, for example the frequency of testing and the tests that may be needed.

An initial physical examination should be carried out if work and medical history indicates this is necessary, for example through the presence of symptoms.

Uranium is a respiratory irritant and it is important to investigate respiratory symptoms. However, spirometry may not be required at this stage.

During exposure to an uranium process

## Monitoring exposure to uranium

Where workers are exposed, suspected of being exposed or are concerned about exposure to uranium, the person conducting the business or undertaking (PCBU) has a duty to arrange a health monitoring appointment with a registered medical practitioner. For example, an appointment should be arranged following spills or loss of containment of uranium resulting in excessive exposure to workers or when workers develop symptoms that may be attributable to uranium exposure.

Inhalation is the primary route of occupational exposure. The extent of pulmonary absorption varies with the solubility of the compound. Uranium compounds have been categorised into three types based on solubility:

* Type F (fast dissolution)
	+ examples: uranium hexafluoride, uranyl fluoride, uranium tetrachloride, uranyl nitrate hexahydrate
	+ displays 100 per cent pulmonary absorption with a half-life in the lungs of 10 minutes
* Type M (medium dissolution)
	+ examples: uranium tetrafluoride, uranium trioxide
	+ displays 10 per cent pulmonary absorption with a half-life in the lungs of 10 minutes and 90 per cent absorption with a half-life in the lungs of 140 days
* Type S (slow dissolution)
	+ examples: uranium dioxide, triuranium octaoxide
	+ displays 0.1 per cent pulmonary absorption with a half-life in the lungs of one minute and 99.9 per cent absorption with a half-life of 7000 days (approximately 10 per cent reaching the body fluid).

Water soluble uranium compounds may be absorbed through the skin while the extent of absorption by the oral route is low (less than eight per cent).

Inhaled uranium compounds are eliminated via the urine. The half-life in the kidneys has been estimated to be one to six days for 99 per cent of the uranium in the kidneys and 1500 days for the remainder.

The following tests may be used to test the worker’s uranium exposure levels:

post shift urinary uranium levels

urinary dipstick analysis for proteinuria, and

urinary cytology.

Where urinalysis is performed, the following value may be used as a guide for assessing exposure to uranium:

Biological exposure guide for uranium[[1]](#footnote-1)

*Urinary uranium:*

200 µL (840 nmol/L)

This value is expected to be protective for injury to the kidney and haematopoietic system and leukaemia. The value applies to all forms of naturally occurring uranium and is expected to be protective for most uranium compounds.

Because of the long half-life of uranium from the kidney and bone is long, the above guide is only valid after 60 days of exposure; biological monitoring results conducted during the early days of exposure may underestimate exposure.

Urine sampling should occur at the end of shift (after at least 60 days exposure). Precautions should be taken to prevent contamination during sampling (e.g. collect samples in an uncontaminated area and avoid contamination from exposed skin or clothes).

The mean urinary concentration of uranium in non-exposed individuals has been reported to be less than 0.35 µg/L (1.5 nmol/L).

Urinary dipstick analysis and urinary cytology should be performed to monitor the possibility of kidney damage or abnormal cells, respectively, as potential indicators of excess exposure.

### Workplace exposure standard

The workplace exposure standard for uranium (natural, soluble and insoluble compounds; as U) is:

* eight hour time weighted average (TWA) of 0.2 mg/m3, and
* short term (15 minute time weighted average) exposure limit (STEL) of 0.6 mg/m3.

A physical examination and urinary testing may be indicated if the results of air monitoring indicate frequent or potentially high exposure (half of the TWA or above).

### Removal from work

Where a medical examination indicates the worker is displaying symptoms of exposure to uranium or where results of biological monitoring indicate exposure that may cause adverse health effects, the registered medical practitioner should consider recommending the worker be removed from uranium-related work.

When removal from uranium-related work is indicated the registered medical practitioner must provide the PCBU with the following recommendations:

* the worker should be removed from work with uranium, and
* the PCBU should review control measures and carry out recommended remedial action.

The worker must be informed of the results of health monitoring.

### Return to work

Should a worker be removed from uranium-related work, they must not return until the registered medical practitioner has:

* assessed them as medically fit, and
* made a recommendation to the PCBU that the worker can return to remediated uranium-related work.

This assessment should take into consideration the clinical condition of the worker, the worker’s urinary uranium levels and remediation of the circumstances that led to the symptoms if possible.

At termination of work in an uranium process

## Final medical examination

A final urine specimen (for urinary cytology, dipstick and uranium analysis) should be collected on the last day at the end of the last shift, with a medical examination carried out as soon as possible thereafter and in any case within a week.

A physical examination should be carried out if work and medical history indicates this is necessary, for example through the presence of symptoms.

Workers with health conditions or continuing symptoms due to uranium exposure should be advised to seek continuing medical examinations as organised by the registered medical practitioner supervising the health monitoring program.

A health monitoring report from the registered medical practitioner should be provided to the PCBU as soon as practicable after the completion of the monitoring program, and at regular intervals for longer term or ongoing health monitoring processes. The report must include:

* the name and date of birth of the worker
* the name and registration number of the registered medical practitioner
* the name and address of the PCBU who commissioned the health monitoring
* the date of the health monitoring
* any test results that indicate whether or not the worker has been exposed to a hazardous chemical
* any advice that test results indicate that the worker may have contracted an injury, illness or disease as a result of carrying out the work that triggered the requirement for health monitoring
* any recommendation that the PCBU take remedial measures, including whether the worker can continue to carry out the type of work that triggered the requirement for health monitoring, and
* whether medical counselling is required for the worker in relation to the work that triggered the requirement for health monitoring.

Potential health effects following exposure to uranium

## Route of occupational exposure

The primary route of occupational exposure to uranium is via inhalation, skin absorption may also occur.

## Target organ/effect

The target organs and potential effects of uranium exposure include:

Table 1 Target organs and potential effects of uranium exposure

| Target organ | Effect |
| --- | --- |
| Kidney | Damage |
| Skin | Irritation after high-dose exposure |
| Respiratory tract | IrritationLung disease Pulmonary fibrosisLung cancer |
| Eyes | Burning sensation |

The toxicity of uranium varies according to its chemical form. The relatively more water‑soluble compounds are the most potent renal toxicants. The less water-soluble compounds are of moderate-to-low renal toxicants and the insoluble compounds have little potential to cause renal toxicity but could cause pulmonary toxicity when exposure is by inhalation.

## Acute effects

Acute health effects, mainly resulting from high-level exposure to uranium include:

* impairment of kidney function and nephrotoxicity (also chronic)
* irradiation damage of the lung (alpha particles)
* interstitial inflammation of the alveolar epithelium
* pulmonary fibrosis
* acute respiratory irritation
* nausea
* loss of appetite
* abdominal pain
* diarrhoea
* tenesmus and pus and blood in the stool
* chemical burns to the eyes
* conjunctivitis, and
* eye irritation.

## Chronic effects

Potential chronic effects of uranium are on the lungs and kidneys, depending on the solubility of the compound.

Small particles of uranium are deposited in the alveoli, with less soluble particles remaining in the lungs for weeks to years. Long term retention in the lungs may lead to:

* serious respiratory effects, and
* chronic lung disease.

Nephrotoxicity can occur due to accumulation of uranium in the renal tubular epithelium which may induce cellular necrosis and atrophy in the tubular wall. Uranium is a less potent nephrotoxin than cadmium or lead.

## Carcinogenicity

Most uranium compounds have not been classified as carcinogenic according to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

## GHS classification

Different uranium compounds may have different health hazard classifications. The specific uranium compound that a worker is exposed to will need to be reviewed to ensure appropriate identification of the health hazards. For the GHS classification of a specific thallium compound, refer to Safe Work Australia's Hazardous Chemical Information System or the relevant safety data sheet for detailed information.

## Source documents

Agency for Toxic Substances and Disease Registry; [Toxicological Profile for Uranium](https://www.atsdr.cdc.gov/toxprofiles/tp150.pdf) (PDF 10MB).

American Conference of Governmental Industrial Hygienists (ACGIH) (2017) Documentation of the Biological Exposure Indices, 7th Ed, Cincinnati.

Centers for Disease Control and Prevention; The National Institute for Occupational Safety and Health; NIOSH Pocket Guide to Chemical Hazards; [Uranium (insoluble compounds, as U)](https://www.cdc.gov/niosh/npg/npgd0650.html).

[*Chemical analysis branch handbook, 9th Edition, Workplace and biological monitoring exposure analysis*](http://www.testsafe.com.au/__data/assets/pdf_file/0007/16387/Chemical-Analysis-Branch-Handbook-9th-edition-TS033.pdf), WorkCover NSW (PDF 3.39MB).

Committee on Uranium Mining in Virginia; Committee on Earth Resources; National Research Council (2011) [Uranium Mining in Virginia: Scientific, Technical, Environmental, Human Health and Safety, and Regulatory Aspects of Uranium Mining and Processing in Virginia](http://www.ncbi.nlm.nih.gov/books/NBK201047/#_sec_123_); Washington (DC): [National Academies Press (US)](http://www.nap.edu/).

Dr J. Leigh (1997) [Occupational Health and Safety in Uranium Mining and Milling](http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Former_Committees/uranium/report/c10) – Parliament of Australia; Worksafe Australia.

Keith, S., Faroon, O., Roney, N. et al. (2013); [Agency for Toxic Substances and Disease Registry; Toxicological Profile for Uranium](http://www.ncbi.nlm.nih.gov/books/NBK158798/).

Lauwerys, R.R. and Hoet, P. (2001) *Industrial Chemical Exposure Guidelines for Biological Monitoring*, 3rd Ed, Lewis Publishers, Boca Raton.

Safe Work Australia (2013); [*Workplace Exposure Standards for Airborne Contaminants*](https://www.safeworkaustralia.gov.au/system/files/documents/1705/workplace-exposure-standards-airborne-contaminants-v2.pdf)(PDF 873KB).

Safe Work Australia; [*Hazardous Chemicals Information System*](http://hcis.safeworkaustralia.gov.au/).

The Expert Committee to Examine Balkan Veteran Exposure to Depleted Uranium on behalf of: The Minister for Veterans' Affairs Commonwealth of Australia (2001) Review of Scientific Literature on the Health Effects of Exposure to Depleted Uranium.

US Department of Labor, Occupational Safety and Health Administration; Chemical Sampling Information. [Uranium (as U), Insoluble compounds](https://www.osha.gov/dts/chemicalsampling/data/CH_274800.html).

Worksafe Australia (1997) [Occupational Health and Safety in Uranium Mining and Milling](http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Former_Committees/uranium/report/c10).

World Health Organization; [Depleted uranium: sources, exposure and health effects](http://www.who.int/ionizing_radiation/pub_meet/en/DU_Eng.pdf) (PDF 22KB).



Health monitoring report

Uranium



# Health monitoring report – Uranium

**This health monitoring report is a confidential health record and must not be disclosed to another person except in accordance with the Work Health and Safety Regulations or with the consent of the worker.**

There are two sections. Complete both sections and all questions as applicable.

**Section 1** A copy of this section should be forwarded to the person conducting the business or undertaking (PCBU) who has engaged your services.

**Section 2** may contain confidential health information. Information that is required to be given to the PCBU should be summarised in Section 1.

Section 1 – A copy of this section to be provided to the PCBU

Person conducting a business or undertaking

**Company/organisation name:** Click here to enter text.

**Site address:** Click here to enter text.

**Suburb:** Click here to enter text. **Postcode:** Click here to enter text.

**Site Tel:** Click here to enter text. **Site Fax:** Click here to enter text.

**Contact Name:** Click here to enter text.

Other businesses or undertakings engaging the worker [ ]  N/A
(include a separate section for each PCBU)

**Company/organisation name:** Click here to enter text.

**Site address:** Click here to enter text.

**Suburb:** Click here to enter text. **Postcode:** Click here to enter text.

**Site Tel:** Click here to enter text. **Site Fax:** Click here to enter text.

**Contact Name:** Click here to enter text.

Worker details (tick all relevant boxes)

**Surname:** Click here to enter text. **Given names:** Click here to enter text.

**Date of birth:** Click here to enter a date. **Sex:** [ ]  Male [ ]  Female

**Address:** Click here to enter text.

**Suburb:** Click here to enter text. **Postcode:** Click here to enter text.

**Current job:** Click here to enter text.

**Tel (H):** Click here to enter text. **Mob:** Click here to enter text.

**Date started employment:** Click here to enter a date.

Employment in uranium risk work (tick all relevant boxes)
(information provided by the PCBU)

[ ]  New to uranium work

[ ]  New worker but not new to uranium work

[ ]  Current worker continuing in uranium work

**Worked with uranium since:** Click here to enter a date.

**Risk assessment completed:** [ ]  Yes [ ]  No

Work environment assessment (tick all relevant boxes)
(information provided by the PCBU)

**Date of assessment:** Click here to enter a date.

**Uranium industry/use**

[ ]  Nuclear power [ ]  Mining, milling or enrichment of uranium

[ ]  Counterweights or ballast in aircraft [ ]  Radiation shields in medical equipment

[ ]  Containers for the transportation of radioactive materials

[ ]  Munitions designed to penetrate armour plate [ ]  Armour plating in military vehicles

[ ]  Nuclear weapons [ ]  Photography toning

[ ]  Stains and dyes in the leather, silk and wood industry

[ ]  Other (specify):

|  |
| --- |
| **Other chemicals the worker may be exposed to:** Click here to enter text. |

| Controls |  |  |
| --- | --- | --- |
| Wear gloves | [ ]  Yes | [ ]  No |
| Respirator use | [ ]  Yes | [ ]  No |
| Respirator type Click here to enter text. |
| Local exhaust ventilation | [ ]  Yes | [ ]  No |
| Overalls/work clothing | [ ]  Yes | [ ]  No |
| Laundering by employer | [ ]  Yes | [ ]  No |
| Wash basins and showers (with hot and cold water) | [ ]  Yes | [ ]  No |
| Other please specify |  |  |

Health monitoring results

**Biological monitoring results**

Include/attach test results that indicate whether or not the worker has been exposed

| Date | Tests performed | Recommended action or comment |
| --- | --- | --- |
| Click here to enter text. | Click here to enter text. | Click here to enter text. |
| Click here to enter text. | Click here to enter text. | Click here to enter text. |
| Click here to enter text. | Click here to enter text. | Click here to enter text. |
| Click here to enter text. | Click here to enter text. | Click here to enter text. |

|  |
| --- |
| **Comments about health monitoring results (for example any early indications or diagnosis of injury, illness or disease):** Click here to enter text. |

Recommendations (by registered medical practitioner) (tick all relevant boxes)

**Further/additional health monitoring for worker**

[ ]  This is the final health monitoring report

[ ]  Repeat health assessment in Click here to enter text. month(s) / Click here to enter text. week(s)

[ ]  Counselling required

[ ]  Medical examination by registered medical practitioner. On Click here to enter a date.

[ ]  Referred to Medical Specialist (respiratory/dermatology/other). On Click here to enter a date.

**Recommendations to PCBU**

[ ]  The worker is suitable for work with uranium

[ ]  Review workplace controls

[ ]  The worker should be removed from work with uranium. On Click here to enter a date.

[ ]  The worker is fit to resume work. On Click here to enter a date.

[ ]  Biological monitoring results indicate unacceptably high exposure levels

**Specialist’s name:** Click here to enter text.

**Additional comments or recommendations:** Click here to enter text.

Registered medical practitioner (responsible for supervising health monitoring)

**Name:** Click here to enter text.

| ****Signature:**** |
| --- |
|  |

**Date:** Click here to enter a date.

**Tel:** Click here to enter text. **Fax:** Click here to enter text.

**Registration Number:** Click here to enter text.

**Medical Practice:** Click here to enter text.

**Address:** Click here to enter text.

**Suburb:** Click here to enter text. **Postcode:** Click here to enter text.

Section 2 – This section to be retained by the registered medical practitioner

Person conducting a business or undertaking

**Company/organisation name:** Click here to enter text.

**Site address:** Click here to enter text.

**Suburb:** Click here to enter text. **Postcode:** Click here to enter text.

**Site Tel:** Click here to enter text. **Site Fax:** Click here to enter text.

**Contact Name:** Click here to enter text.

Other businesses or undertakings engaging the worker [ ]  N/A

**Company/organisation name:** Click here to enter text.

**Site address:** Click here to enter text.

**Suburb:** Click here to enter text. **Postcode:** Click here to enter text.

**Site Tel:** Click here to enter text. **Site Fax:** Click here to enter text.

**Contact Name:** Click here to enter text.

Worker details (tick all relevant boxes)

**Surname:** Click here to enter text. **Given names:** Click here to enter text.

**Date of birth:** Click here to enter a date.

**Sex:** [ ]  Male [ ]  Female [ ]  Pregnant/breastfeeding

**Address:** Click here to enter text.

**Suburb:** Click here to enter text. **Postcode:** Click here to enter text.

**Current job:** Click here to enter text.

**Tel (H):** Click here to enter text. **Mob:** Click here to enter text.

**Date started employment:** Click here to enter a date.

Past employment and exposure details (tick all relevant boxes)

**Have you ever worked in any of the following jobs?**

If you answered ‘yes’ to any of the questions, please advise if you experienced any symptoms such as cough or wheeze or asthma when working.

|  |  |  |  | **Comments** (all ‘yes’ answers) |
| --- | --- | --- | --- | --- |
| Nuclear power | [ ]  No | [ ]  Yes | Click here to enter text. |
| Mining, milling or enrichment of uranium | [ ]  No | [ ]  Yes | Click here to enter text. |

**Manufacture or use of:**

|  |  |  |  | **Comments** (all ‘yes’ answers) |
| --- | --- | --- | --- | --- |
| Counterweights or ballast in aircraft | [ ]  No | [ ]  Yes | Click here to enter text. |
| Radiation shields in medical equipment | [ ]  No | [ ]  Yes | Click here to enter text. |
| Containers for the transportation of radioactive materials | [ ]  No | [ ]  Yes | Click here to enter text. |
| Munitions designed to penetrate armour plate | [ ]  No | [ ]  Yes | Click here to enter text. |
| Armour plating in military vehicles | [ ]  No | [ ]  Yes | Click here to enter text. |
| Nuclear weapons | [ ]  No | [ ]  Yes | Click here to enter text. |
| Photography toning | [ ]  No | [ ]  Yes | Click here to enter text. |
| Stains and dyes in the leather, silk and wood industry | [ ]  No | [ ]  Yes | Click here to enter text. |
| Other (please specify) | [ ]  No | [ ]  Yes | Click here to enter text. |
| Worked in areas where there was exposure to radiation | [ ]  No | [ ]  Yes | Click here to enter text. |

General health questionnaire (tick all relevant boxes)

|  |  |  |  |
| --- | --- | --- | --- |
| Did you suffer any incapacity lasting two weeks or longer in the last two years | [ ]  No | [ ]  Yes | Click here to enter text. |
| Have you ever had any operations or accidents or been hospitalised for any reason | [ ]  No | [ ]  Yes | Click here to enter text. |
| Are you currently receiving any medical treatment or taking any medications. Please detail. | [ ]  No | [ ]  Yes | Click here to enter text. |
| Do you practice personal hygiene at work, for example nail biting, frequency of hand washing, eating or smoking, clean shaven, shower and change into clean clothes at end of shift | [ ]  No | [ ]  Yes |  |

Specific health questions (tick all relevant boxes)

**Do you have or have you ever had:**

|  |  |  |  |
| --- | --- | --- | --- |
| Itchy eyes, runny or congested nose | [ ]  No | [ ]  Yes | Click here to enter text. |
| Shortness of breath on exertion | [ ]  No | [ ]  Yes | Click here to enter text. |
| Wheezing, bronchitis or asthma now or in the past | [ ]  No | [ ]  Yes | Click here to enter text. |
| Any other lung or respiratory conditions (emphysema, pneumonia or sinusitis) | [ ]  No | [ ]  Yes | Click here to enter text. |
| Allergies, hay fever, or allergic bronchitis | [ ]  No | [ ]  Yes | Click here to enter text. |
| Does anyone in your immediate family (blood relatives only) have asthma, hay fever or eczema  | [ ]  No | [ ]  Yes | Click here to enter text. |
| Liver disease (including alcohol related or other hepatitis) | [ ]  No | [ ]  Yes | Click here to enter text. |
| Kidney or bladder disease | [ ]  No | [ ]  Yes | Click here to enter text. |
| Diabetes | [ ]  No | [ ]  Yes | Click here to enter text. |
| Blood disorders | [ ]  No | [ ]  Yes | Click here to enter text. |
| Chronic fatigue or tiredness | [ ]  No | [ ]  Yes | Click here to enter text. |
| Significant weight loss | [ ]  No | [ ]  Yes | Click here to enter text. |
| Any form of cancer | [ ]  No | [ ]  Yes | Click here to enter text. |
| Any other significant health conditions | [ ]  No | [ ]  Yes | Click here to enter text. |

General health assessment (if applicable)

**Height:** Click here to enter text. cm **Weight:** Click here to enter text. kg

**BP:** Click here to enter text. / Click here to enter text. mmHg

**Urinalysis**

**Blood:** [ ]  Normal [ ]  Abnormal

**Protein:** Click here to enter text. **Referred for further testing**

**Sugar:** Click here to enter text. [ ]  No [ ]  Yes

| **Respiratory system** |  |  | **Medical comments** (for all abnormal) |
| --- | --- | --- | --- |
| Breathing normal and regular in character | [ ]  Yes | [ ]  No | Click here to enter text. |
| Auscultation normal | [ ]  Yes | [ ]  No | Click here to enter text. |
| Signs of past/present respiratory disease | [ ]  No | [ ]  Yes | Click here to enter text. |
| Skin |  |  |  |
| Eczema, dermatitis or allergy | [ ]  No | [ ]  Yes | Click here to enter text. |
| Skin cancer or other abnormality | [ ]  No | [ ]  Yes | Click here to enter text. |
| Evidence of nail biting | [ ]  No | [ ]  Yes | Click here to enter text. |
| Other | [ ]  No | [ ]  Yes | Click here to enter text. |



Figure 1 Template of the human body to indicate the location of abnormalities

| **Eye** |  |  | **Medical comments** (for all abnormal) |
| --- | --- | --- | --- |
| Evidence of eye irritation | [ ]  No | [ ]  Yes | Click here to enter text. |

Biological monitoring results

Include/attach at least the previous two test results (if available)

| Date | Tests performed | Recommended action or comment |
| --- | --- | --- |
| Click here to enter a date. | Click here to enter text. | Click here to enter text. |
| Click here to enter a date. | Click here to enter text. | Click here to enter text. |
| Click here to enter a date. | Click here to enter text. | Click here to enter text. |
| Click here to enter a date. | Click here to enter text. | Click here to enter text. |

Other medical history, family medical history, current medication, comments, tests or recommendations (use separate sheet if necessary)

Click here to enter text.

Registered medical practitioner (responsible for supervising health monitoring)

**Name:** Click here to enter text.

| ****Signature:**** |
| --- |
|  |

**Date:** Click here to enter a date.

**Tel:** Click here to enter text. **Fax:** Click here to enter text.

**Registration Number:** Click here to enter text.

**Medical Practice:** Click here to enter text.

**Address:** Click here to enter text.

**Suburb:** Click here to enter text. **Postcode:** Click here to enter text.

1. American Conference of Governmental Industrial Hygienists (ACGIH) (2017) Documentation of the Biological Exposure Indices, 7th Ed, Cincinnati. [↑](#footnote-ref-1)