



# Australian Government

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## Geoscience Australia

# Indoor Air Quality Monitoring Procedure

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# 1 Introduction

## 1.1 Purpose

Geoscience Australia (the organisation) is committed to ensuring all workers are safe from injury and risk to their health and wellbeing. We are committed to driving a holistic positive Work Health Safety (WHS) culture that is flexible for our diverse workplaces incorporating policies, procedures, education, awareness, tools and resources. The organisation is committed to the implementation and maintenance of effective WHS strategies in accordance with the [Work Health and Safety Act 2011 \(Cth\)](#) (WHS Act) that promote continuous WHS improvement through the achievement of a positive safety culture.

This procedure outlines how indoor air quality (IAQ) monitoring will be conducted, including the responsibilities and arrangements agreed between the organisation and workers on the management, promotion and development of measures.

Consultation and management of WHS is a continual process, ensuring the health, safety and welfare of workers is maintained.

## 1.2 Scope

This procedure applies to all workers, including contractors and volunteers who may be potentially exposed to airborne hazardous material during their employment.

## 1.3 Principles

This procedure is underpinned by the following principles:

- The wellbeing and safety of our workers is paramount.
- The organisation will support and provide information, resources and procedures to its workers to support a healthy and safe workplace.
- The organisation will ensure officers and workers are provided information and resources to successfully understand and fulfil their roles pursuant to the WHS Act.
- Workers will actively participate in identifying, rectifying and evaluating safety issues.
- The organisation will appropriately manage workplace risks.

## 2 Procedures

### 2.1 The management of indoor air quality in the organisation

**Aim:** To ensure IAQ is monitored to maintain a safe and healthy workplace.

**Policy:**

Geoscience Australia will ensure our workers are provided with a safe working environment and exposure to hazards and risks are, where reasonably practicable, removed, minimised or managed.

Geoscience Australia will develop and maintain safe working conditions and practices in all Geoscience Australia work environments.

1. The organisation is committed to working in partnership with our workers to ensure their safety and wellbeing at work. To achieve this, we take all reasonably practicable steps to protect the health and safety of our workers in the planning and delivery of their work.
2. IAQ refers to the condition of air within an enclosed workplace. A risk management approach to IAQ ensures risks are appropriately identified and managed, providing safe and healthy workplaces for our workers.
3. There are six main steps in effective risk management:
  - establishing the scope, context and criteria
  - risk assessment
  - risk treatment
  - communication and consultation
  - monitoring and review
  - recording and reporting.

### 3 Hazardous airborne material

**Aim:** Identify hazardous airborne material to ensure it is managed, reduced and/or eliminate harm in the workplace.

**Policy:**

Geoscience Australia will ensure our workers are provided with a safe working environment and exposure to hazards and risks are, as far as reasonably practicable, removed, minimised or managed.

Geoscience Australia will develop and maintain safe working conditions and practices in all Geoscience Australia work environments.

4. Hazardous airborne material are those materials that are part of the air mixture but are foreign to the normal state of the mixture. This includes gases, vapours, and particulate matters including dusts, smoke, fumes, and mists, which are dispersed as solid particles and can impact IAQ.
5. Inhalation of airborne hazardous material will only enter the body if workers are directly exposed. Sufficient and adequate control measures are used to ensure that workers will not be exposed at a level that would adversely affect their health.
6. Inhalation is the most rapid and direct route of entry to the human body and the effects of exposure will depend on:
  - concentration of hazardous material in the atmosphere
  - duration to the hazardous material
  - solubility of hazardous material in blood and tissue, as fat soluble materials will be absorbed and retained in the body longer than the non-fat soluble compounds
  - re-activity of the hazardous material
  - the particle size and shape.
7. The exposure of airborne hazardous materials can cause immediate effect, or can take decades before the effects on the body become evident.

## 3.1 Risk Control

8. It is important to ensure that the hazards associated with airborne hazardous material within our workplace are managed in accordance with the hierarchy of controls identified in the [Hazard identification and risk control procedure](#). Depending on the nature of exposure, and the significance of the risk, more than one control may be required to reduce exposure to airborne hazardous material.
9. These may include:
  - elimination of work tasks or activities not considered essential or business critical
  - substitution or re-designing of more suitable work methods
  - providing case management support for workers requiring assistance in their return to work after exposure to hazardous airborne material.

### 3.1.1 Organisational existing IAQ risk control measures

10. Risks associated with hazardous airborne material are considered at an organisation level and are managed in accordance with relevant policies and procedures. The levels of risk to workers from exposure to hazardous airborne material depends on the hazards as well as the frequency, duration and amount of exposure.
11. Where indicated, assessments are conducted in multiple areas of the main building to provide a baseline reading of IAQ. The following indicators are tested:
  - temperature
  - relative humidity
  - carbon dioxide level
  - carbon monoxide level
  - airborne particulate matter (PM2.5, PM10) and airborne and surface microbiological levels.

### 3.1.2 Monitor and review

12. Mandatory and scheduled IAQ monitoring are currently in place in specific locations throughout the building. Locations and timeframes of monitoring are:
  - Laboratories - monitoring to be conducted every two years
  - SHRIMP and organic laboratory – oxygen depletion monitoring is continual and is calibrated annually

- fossil and mineral collections – testing for naturally occurring asbestos fibres every three years
- multiple locations in the Symonston building during significant environmental events.

13. IAQ monitoring is implemented within these areas after certain types of incidents, for example, mercury spills. The critical steps in any monitoring program, either source emission or ambient air, include the following but are not limited to:

- selecting an approved measurement method and appropriate equipment
- maintaining logs of instrument and equipment operating conditions
- analysing the samples or sampled air accurately and precisely following approved analytical methods
- reporting results accurately and completely to a governing authority, for example the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

14. Human Resources must remain informed of emerging and existing health risks to our IAQ.

## 4 Health Monitoring

**Aim:** Ensure all legal and best practice safety, health and environmental requirements are in place and remain in place. Monitoring is a vital part of a health and safety culture.

**Policy:**

Geoscience Australia will ensure our workers are provided with a safe working environment and exposure to hazards and risks are, where possible, removed, minimised or managed.

Geoscience Australia will develop and maintain safe working conditions and practices in all Geoscience Australia work environments.

15. Exposure to hazardous chemicals can have a broad range of health effects depending on the amount of chemical present and the length of exposure. Some chemicals have more profound effect than others.
16. Specialised areas within the organisation have clear procedures that must be implemented, monitored and recorded after certain types of incidents, for example mercury spills.
17. Health monitoring records are to be kept for 30 years and are not to be disclosed to another person without the consent of the worker, unless an exception applies under the [Privacy Act 1988](#).

## 4.1 Risk assessments

18. The level of risk to workers from exposure to hazardous materials depends on the hazards as well as the frequency, duration and amount of exposure. To determine the level of risk, it is necessary to draw together the information gathered about hazardous materials and the way it is used in the workplace. This will involve considering the degree of exposure and the:
- actual process and practises where the materials are used
  - quantity of materials being handled
  - work practices and procedures and the way individual workers carry out their daily tasks
  - existing control measures and suitable control exposures.
19. This involves considering the nature and severity of a hazard for each hazardous material. This information is available from Safety Data Sheet's (SDSs) and/or [ChemAlert](#).

# 5 IAQ monitoring during significant events

**Aim:** To reduce or eliminate the impact on workers' health whilst undertaking work for the organisation.

**Policy:**

Geoscience Australia will ensure our workers are provided with a safe working environment and exposure to hazards and risks are, where possible, removed, minimised or managed.

Geoscience Australia will develop and maintain safe working conditions and practices in all Geoscience Australia work environments.

## 5.1 Watch Event

20. A Watch Event is created to monitor a situation and prepare the organisation to respond.
21. **Create watch event:** Upon detecting an IAQ occurrence that has the potential to cause an emergency or disruptive event, the General Manager Corporate Division (GMCD), or appropriate delegate, will raise a watch event. In raising a watch event, the GMCD will record the following information:
- a. date and time the watch event was created
  - b. circumstances leading to the creation of the watch event
  - c. any actions taken so far.

22. **Notify key stakeholders:** Upon creation of a watch event, key stakeholders will be notified so they are aware of the situation and further action may be needed if conditions deteriorate.
23. **Implement enhanced monitoring:** Finance and Facilities will implement enhanced IAQ monitoring in accordance with section 5.2.
24. **Provide updates to stakeholders:** The GMCD will provide updates to key stakeholders at regular intervals and/or when conditions change.
25. **Escalate:** If the IAQ is measured as 'hazardous', the GMCD will escalate the event from 'watch' to 'act' in accordance with section 5.2.2.
26. **Close watch event:** When the GMCD determines that the risk of disruption from the IAQ occurrence no longer requires enhanced monitoring, they will close the watch event and notify key stakeholders. The GMCD will ensure that appropriate records of the event are saved in the entity's endorsed recordkeeping system.

## 5.2 Event: Bushfire, dust storm or chemical spill

27. Airborne hazardous particles exposure in the workplace can pose significant health risks to workers. This can happen when workers inhale vapours, dusts, fumes or gases.
28. There is no single Australian Standard that addresses acceptable IAQ. Therefore, during environmental significant events, for example bushfire smoke, IAQ monitoring will be undertaken by Finance and Facilities using the IAQ provided by ACT Health.

### 5.2.1 AQI categories during environmental significant events

29. There are six AQI categories ranging from "very good" to "hazardous". Values range between 0 and 200+, where a lower value indicates better AQI and a higher value indicates poor IAQ as shown in the figure below.

Very Good ●	Good ●	Fair ●	Poor ●	Very Poor ●	Hazardous ●
0-33	34-66	67-99	100-149	150-200	200+

30. Finance and Facilities will conduct IAQ readings on a daily basis prior to 7:30 am and will compare the results against the air quality index. When the IAQ is reported to be very good to fair (0-99) no action is required. However, when a reading is poor or higher (100-200+), it will be documented and the following groups will be notified no later than 9:00 am on the day via email:

- Human Resources
- General Manager, Enabling Services
- Chief Operating Officer

31. Additional readings will be taken at 12:30pm and any further communication will be updated by Human Resources if changes to [IAQ](#) are identified.

## 5.2.2 Escalation: AQI impact on business operations

32. During an environmental significant event, if the [IAQ](#) is measured as “hazardous” the GMCD will brief the COO and Chief Executive Officer (CEO) to determine next steps. This may include reducing or ceasing operations. The CEO or COO may activate the entity’s business continuity arrangements in accordance with the [Entity Business Continuity Plan](#).
33. The CEO, or appropriate delegate, will notify all workers of any decision to reduce or cease business activities on site.
34. The Chair of the MRT will notify members in advance, so far as reasonably practicable, to assist in ensuring all workers in the affected area/s are informed. Managers must remain in contact with their workers until normal operations resume.
35. Workers should remain updated via the intranet and email.
36. [Finance and Facilities](#) will continue to monitor air quality. Communications will be managed by [Human Resources](#), including responding to worker enquiries and identifying support options where appropriate.
37. If the [IAQ](#) is within acceptable standards, workers should continue to work as usual. In circumstances where air quality is impacting workers health and wellbeing, the organisation may:
  - temporarily re-locate the work to a suitable alternative location
  - request workers work from home.
38. If the [IAQ](#) is impacting a worker’s wellbeing, for example, exacerbated asthma symptoms, the worker may request personal leave with appropriate medical evidence.

## 5.2.3 Indoor air quality improvement

39. During significant environmental events, advice and support are provided by qualified heating, ventilation and air conditioning (HVAC) technicians to assist and provide the best possible [IAQ](#) within the building. Filters on the HVAC system are checked daily and regularly cleaned. This will be managed by [Finance and Facilities](#).
40. Whilst meeting air flow requirements set by the relevant Australian Standards the amount of outside air that is brought in through our HVAC system is reduced. This will prevent large volumes of poor air quality entering the building/s.
41. In the event that the outdoor air quality is better than the indoor air quality, the air intake on our HVAC system is to be opened in full to allow the exhaust fans to extract indoor air quality. This process is known as ‘purging the indoor air’ to improve the [IAQ](#).

## 6 Supporting Information

This section is informative.

### Roles and Responsibilities

Chief Operating Officer	<ul style="list-style-type: none"> <li>Notifies the Management Response Team (MRT) when a watch event is created; keeps the MRT updated; determines (in consultation with Human Resources) the organisation's response following a deterioration in conditions.</li> </ul>
Finance and Facilities	<ul style="list-style-type: none"> <li>Monitor air quality readings, maintenance of the HVAC systems, liaise and communicate with stakeholders in the event of poor indoor air quality.</li> </ul>
General Manager, Enabling Services	<ul style="list-style-type: none"> <li>Creates watch event, notifies and updates relevant stakeholders, escalates watch events to COO and CEO, if conditions deteriorate, consults next steps.</li> <li>Closes the watch event, ensures that appropriate records are kept.</li> </ul>
Human Resources	<ul style="list-style-type: none"> <li>Develops and maintain communications with workers.</li> <li>Respond to worker enquiries; Identify support options where appropriate.</li> <li>Provide advice, as required.</li> </ul>
Managers and delegate	<ul style="list-style-type: none"> <li>Remain in contact with their workers until normal operations resume, providing updates and communications within their team via email and intranet announcements.</li> </ul>

### Related Procedures

<a href="#">Work Health and Safety Procedures</a>	Geoscience Australia's commitment and agreed procedures to comply with the Work Health and Safety legislation.
<a href="#">Risk Management Procedure</a>	Define how the Risk Management Policy (the Policy) will be implemented in practice and to ensure Geoscience Australia manages risks effectively and consistently.
<a href="#">Entity Business Continuity Plan</a>	Procedures for responding to an entity-wide business disruption.

## Related Policies

<a href="#">Work Health and Safety Policy</a>	Policy related to the application of <a href="#">Work Health and Safety Act 2011</a> (Cth) within Geoscience Australia.
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## Definitions

Air Quality Index (AQI)	The Air Quality Index (AQI) is a scale of air pollution that helps us understand air quality and modify our activities if pollution levels are high.
Asthma	A respiratory condition marked by attacks of spasm in the bronchi of the lungs, causing difficulty in breathing. It is usually connected to allergic reaction or other forms of hypersensitivity.
Airborne particulate matter	Includes dust, dirt, soot, smoke, and liquid droplets emitted into the air, is small enough to be suspended in the atmosphere
Carbon Dioxide	A colourless, odourless gas produced by burning carbon and organic compounds and by respiration. It is naturally present in air (about 0.03 per cent) and is absorbed by plants in photosynthesis.
Carbon Monoxide	A colourless, odourless toxic flammable gas formed by incomplete combustion of carbon.
Hazardous Airborne material	Includes dusts, gases, vapours, smoke and fumes have the potential to cause or exacerbate a range of serious respiratory diseases.
Indoor air quality	Indoor air quality is the air quality within and around buildings and structures.