Guideline Title: **Occupational Hygiene and Health Monitoring – Chemical Exposure**

Guideline Owner: **Chief Safety Officer**

This guideline supports the University to operationalise the Work Health and Safety Policy [PL139] and must be complied with.

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1. INTENT

The purpose of this guideline is to outline the scope and application of Edith Cowan University's (ECU) Occupational Hygiene and Health Monitoring (OHHM) program. The OHHM guideline describes a coordinated and systematic approach for providing, maintaining and continuously improving, so far as is reasonably practicable, a safe and healthy working and learning environment for ECU workers, students, and visitors.

This OHHM guideline describes the mandatory requirements to:

- Support implementation and compliance with health and safety legislation and alignment to related Australian/New Zealand (AS/NZ) and International (ISO) Health and Safety standards.
- Eliminate or minimise the risk to health and safety so far as is as reasonably practicable.

2. ORGANISATIONAL SCOPE

This Guideline applies to leaders of organisational units at Edith Cowan University (ECU) and provides for the determination of hygiene and health monitoring of all ECU staff and in some instances students, contractors and visitors conducting activities with, or on behalf of ECU.

3. DEFINITIONS

The University Glossary and the WHS Definitions Register apply to this guideline.

4. GUIDELINE CONTENT

This guideline provides a framework for the assessment, evaluation and control of staff, student and contactor/visitor exposures to chemical, physical and biological hazards at all ECU campuses. Figure 1 provides an overview of the four-stage process involved.

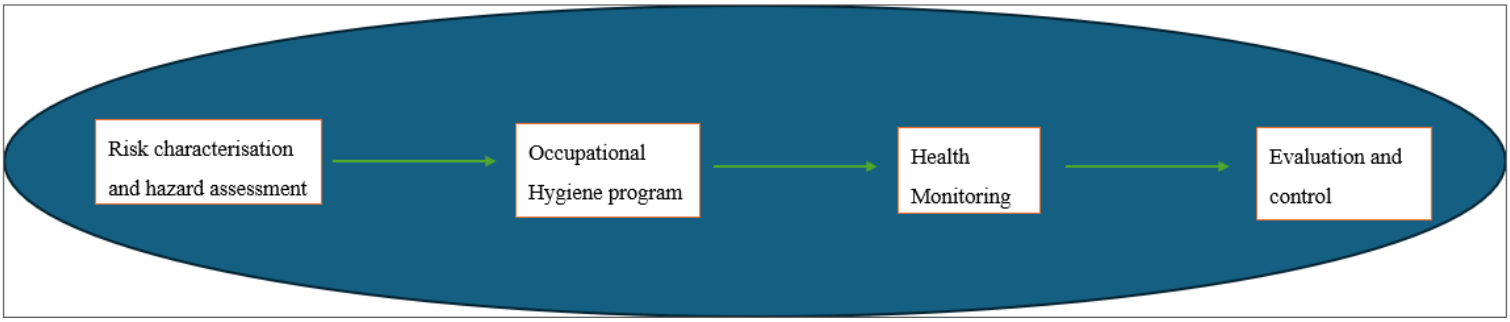

Figure 1: OHHM guide process

Risk Characterisation and Hazard/Risk Assessment

4.1. The first step in the process is a team-based safety review and risk assessment. Executive Deans or their delegates will determine the composition of the teams depending upon the area being assessed.

Typically, the team will comprise 5-10 members and could include Operations Managers, Discipline Associate Deans, Research Institute and Centre Directors, Laboratory Managers, Teaching Staff, Technical Support Staff, Health and Safety or Student Representatives, School/Centre WHS Committee members, members of the Radiation, Biosafety & Biosecurity, and Chemicals & Hazardous Substances (RBHS) Committee, an Occupational hygienist, or a member of the ECU WHS team.

4.2. The process will include:

- Reviewing documented or known hazards and current controls.
- If potential chemical exposure, conducting a chemical audit using ECU systems (Riskware and ChemAlert) that aligns to WorkSafe WA's Code Of Practice: Managing risks of hazardous chemicals in the workplace
- Specifically assessing for hazards that may be overlooked in standard risk reviews such as examining crystalline silica, which often requires specialised analysis (e.g. microscopic examination) to distinguish from other forms of silicon dioxide.
- Conducting a walk through survey and occupational hygiene risk assessment to identify activities across the School/Centre/University that require occupational hygiene and health monitoring.
- Determination of risk characterisation (exposure profiles for groups). In most cases it will be necessary to differentiate between coursework and research activities and different student, technical or academic staff groups as exposure profiles will differ.
- Determination of similar exposure groups (SEGS) and allocation of risk ratings.

- Use of the ECU risk matrix to assess risk profiles.
- The ECU RASCI Matrix will be used to determine relevant roles and responsibilities.

Occupational Hygiene Monitoring

4.3. The Occupational Hygiene Monitoring Program will be determined by the outcomes of the risk characterisation and hazard assessment described in 4.1 and 4.2.

4.4. The below principles are to be included in the Occupational Hygiene Monitoring Program design:

- All occupational hygiene monitoring will be undertaken using approved methods as detailed in Australia/New Zealand (ANZ) Standards, the International Standards Organisation (ISO), or by other appropriate international agencies such as the National Institute of Occupational Safety and Health (NIOSH), and the United States Centre for Disease Control and Prevention (CDC).
- All sampling equipment must be calibrated, and records of maintenance and calibration must be documented.
- Specific protocols for assessing exposures to risks e.g. substances such as respirable crystalline silica must be included. For example, refer to Safe Work Australia's guidelines on respirable crystalline silica or WorkSafe WA's Code Of Practice Managing noise and preventing hearing loss at work.
- If any external analysis of samples is required, this must be completed in laboratories that have National Association of Testing Authorities (NATA) accreditation for the methods used.
- The number of samples to be collected for exposure assessment will be guided by the number of people exposed per SEG as detailed by the compliance monitoring strategy of DEMIRS guide on the preparation of a health and hygiene management plan

  Table 1: Determination of sample size to include the top 20% of a SEG with homogenous exposure with 95% confidence.

SEG(N)	<6	7-8	9-11	12-14	15-18	19-26	27-43	44-50	>51
Minimum # of individuals sampled	n=N	6	7	8	9	10	11	12	14

- Exposure data will be analysed using Industrial Hygiene Statistics (IHSTAT) (AIHA 2023), or similar software that compares the sample data to the relevant workplace exposure standard (WES)., aligning with Safe Work Australia's Workplace exposure standards for airborne contaminants (2024).

- The Geometric Standard Deviation (GSD) will confirm the validity (homogeneity) of SEG classifications prior to further analysis being undertaken (GSD<3).
- For exposures associated with chronic health effects, the arithmetic mean, and the 95% Upper Confidence Limit (UCL) mean will be assessed. If this figure is lower than the WES it can be assumed that exposures are acceptable and well controlled. However, if it exceeds the WES exposures are to be deemed as unacceptable and not controlled.
- The percentage of predicted WES exceedances will also be determined and should be <5%.
- For acute health effects maximum exposures will be assessed by examining the 95th percentile value and the 95% Upper Tolerance Limit (UTL) of the 95th percentile to ensure that the WES is below this value.
- A health and hygiene register will be established and maintained by ECU's Work Health and Safety (WHS) team to document all exposure data and controls. This register will be managed in accordance with applicable data privacy legislation and institutional policies, and data will be stored centrally.
- The hygiene data will be used to identify areas where additional monitoring may be required, where controls need to be implemented, and frequency of follow up sampling.
- The occupational hygiene program, including the risk assessments, chemical audits, sampling design and data analysis will be conducted under the guidance of a suitably qualified Occupational hygienist. ECU may utilise internal Occupational Hygiene resources; however, if external expertise is required, this will be funded by the relevant School/Centre.

Occupational Health Monitoring

4.5. The physical presence of chemical agents does not necessarily imply a high risk of exposure; therefore, a team-based qualitative risk assessment will be undertaken to determine the level of risk.

4.6. The health monitoring program will be developed using occupational hygiene data and the outcomes of the team-based risk assessments that will consider, in addition to measured exposure levels, aspects such as frequency and duration (time component) of associated activities and historical exposure/air monitoring data to determine whether health monitoring is required.

4.7. The Safe Work Australia Health Monitoring for Persons Conducting a Business or Undertaking Guide will be used to develop the health monitoring program, including Appendix A and B.

- For areas with potential laser exposure risks, while current guidance no longer mandates eye testing as part of statutory health monitoring, voluntary eye testing will be made available for risk mitigation purposes, acknowledging challenges in achieving full follow-up compliance.

- Additionally, for radiation workers or personnel exposed to higher-than-threshold levels of radiation, specific monitoring and management protocols should be developed in line with ECU's Radiation Management Plan.
- The health monitoring program will be supervised by a registered medical practitioner with experience in health monitoring, when required
- Health monitoring records for individuals will be recorded on staff personnel files (for staff), and on student records for current students.

5. ACCOUNTABILITIES AND RESPONSIBILITIES

The Guideline Owner the Chief Safety Officer has overall responsibility for the content of these guidelines and their operation.

6. RELATED DOCUMENTS

Australian/New Zealand and International Standards

AS 2985-2004 Workplace atmospheres - Method for sampling and gravimetric determination of respirable dust.
AS 3640-2004 Workplace atmospheres - Method for sampling and gravimetric determination of inhalable dust.
AS/NZS 1269.1:2005 Occupational noise management; Part 1: Measurement and assessment of noise emission and exposure.

Policies

ECU Work Health and Safety Policy

Operational documents and resources

Safe Work Australia Health Monitoring for Persons Conducting a Business or Undertaking Guide
Workplace exposure standards for airborne contaminants (2024).
Model Code of Practice: Managing risks of hazardous chemicals in the workplace (2023)
RASCI Matrix
Safe Work Australia – Workplace exposure standard for respirable crystalline silica
SafeWork NSW – Hazardous Chemicals Guidance
DEMIRS Guide

7. CONTACT INFORMATION

For queries relating to this document please contact:

Guideline Owner	Chief Safety Officer
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8. APPROVAL HISTORY

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