University Occupational Health and Safety Standard
OCCUPATIONAL HYGIENE

1. PURPOSE

The University is committed to meeting its legal obligations by ensuring that it has adequate arrangements, facilities and trained personnel to reduce the risk of injury or ill health from work activities involving hazardous agents. Harmful agents include chemical vapours, dusts, heat, cold, noise, vibration, plus ergonomic and psychological hazards.

Occupational hygiene is concerned with people and their working environments. It uses scientific and engineering techniques to measure workplace exposures to agents hazardous to health. The results are then used to determine the effectiveness of existing risk control measures, to evaluate risks to health, and to advise on new measures to control the resulting risks.

Work / research activities and processes should be designed so that agents hazardous to health are controlled at source, thereby preventing exposure that could cause ill-health. Where such hazards cannot be controlled at source, the resulting risks need to be minimised by selecting appropriate risk control measures and ensuring they remain effective. In many cases, these objectives are achieved on the basis of occupational hygiene monitoring.

This document outlines the purpose and benefits of occupational hygiene services, along with the procedures for obtaining advice and / or monitoring to ensure that the health issues of a proposed or existing work activity are appropriately managed.

2. SCOPE

This document applies to all staff, students, post graduate students and visitors (for example visiting academics) who either work with hazardous agents (or are likely to be exposed to them) or have managerial responsibilities in such areas.

3. ABBREVIATIONS

COSHH	Control of Substances Hazardous to Health Regulations as Amended (2002)
dB	Decibel
DSC	Departmental Safety Coordinator
EAV	Exposure Action Value
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrence Regulations
SHaW	Safety, Health and Wellbeing
SIRIS	Strathclyde Incident Reporting and Investigation System
WEL	Workplace Exposure Limit

4. DEFINITIONS

4.1 Dust - Dust of any kind when present at a concentration in air equal to or greater than 10 $mg.m^{-3}$ 8-hour time weighted average of inhalable dust or 4 $mg.m^{-3}$ 8-hour time weighted average of respirable dust. This means that any dust will be subject to COSHH if people are exposed to dust above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limits.

4.2 Fume - Often used to include gases and vapours, this is not the case for exposure limits where 'fume' should normally be applied to solid particles generated by chemical reactions or condensed from the gaseous state, usually after volatilisation from melted substances.

4.3 Hazardous Agents - In relation to occupational hygiene, workplace hazards that may be present in the form of chemical, physical, biological or ergonomic.

4.4 Hand-Arm Vibration - Mechanical vibration which is transmitted into the hands and arms during a work activity.

4.5 Health Surveillance – Assessment of the state of health as related to exposure to hazardous agents.

4.6 Noise – Any audible sound.

4.7 Whole body Vibration - Mechanical vibration which is transmitted into the body, when seated or standing, through the supporting surface, during a work activity.

5. ROLES AND RESPONSIBILITIES

The University OHS Standard for Roles, Responsibilities and Accountabilities document defines the roles, responsibilities and accountabilities necessary to implement the Occupational Health, Safety and Wellbeing Policy statement at each level of the organisation.

For roles and responsibilities in relation to the control of specific hazards (i.e. Noise, Vibration, substances hazardous to health) see the relevant document on the SHaW website.

The roles and responsibilities specifically in relation to occupational hygiene are detailed as follows:

5.1 Executive Deans

Responsible for performance monitoring of this Standard within their area of responsibility including the University's significant partnerships, collaborations and wholly owned companies. They must ensure that departments are resourced such that this Standard is fully implemented.

5.2 Heads of Department/Heads of School/Professional Services Directors

Responsible for ensuring compliance with this Standard throughout their area of responsibility through provision of adequate resources and performance monitoring. They will be assisted by the DSC or other nominated person(s) to carry out delegated tasks as appropriate. Specifically, they will ensure that:

- Appropriate management, administrative and technical arrangements are in place to effectively control risks arising from activities involving hazardous agents, and ensure that these are regularly reviewed;
- DSCs are given all resources necessary, including appropriate time and training, to allow them to carry out their functions efficiently;
- All necessary risk assessments have been carried out, that they identify hazardous agents, and that appropriate control measures are implemented;
- They, or a nominated person, are appointed as a primary contact to request and discuss any appropriate health surveillance requirements with the Occupational Health Service;
- A person(s) is nominated to coordinate the programme of occupational hygiene monitoring and health surveillance where required;
- A programme of occupational hygiene monitoring is delivered, maintained and reviewed periodically;
- A programme of occupational health surveillance is monitored, maintained and reviewed;

- Safety related incidents involving hazardous agents are reported and investigated appropriately with corrective action taken where required.

5.3 Departmental Safety Coordinator

The DSC (or other nominated person) is responsible for ensuring that:

- Line Managers / Principal Investigators / Academic Supervisors implement the requirements of their risk assessments;
- Effective co-ordination of the occupational hygiene monitoring and occupational health surveillance programmes;
- Where necessary act as contact with SHaW to co-ordinate occupational hygiene visits for the department;
- Storing occupational hygiene monitoring reports for the necessary retention period;
- The provision of advice on the control of risks, procedures to be followed and on training requirements;
- The provision of information in relation to the implementation of this OHS standard is made available to SHaW for audit purposes as required.

5.4 Line Managers / Principal Investigators / Academic Supervisors / COSHH Assessors

Responsible on a day-to-day basis for ensuring that risks associated with hazardous agents are managed within their area of responsibility. Specifically, they will ensure:

- Departmental safety arrangements are implemented within their area of responsibility as they apply to the work being undertaken;
- An up-to-date knowledge of the risks associated with the work under their control is maintained;
- The identification and assessment of the risks to personnel under their supervision / management from possible exposure to hazardous agents;
- Where necessary, in consultation with the DSC, request the services of the Occupational Hygienist (via SHaW);
- Participate in any recommended occupational hygiene monitoring;
- Implement any recommendations / additional control measures identified by the Occupational Hygienist as a result of monitoring, including the requirement for health surveillance;
- Monitor the effectiveness of risk control measures, and periodically review the risk assessment;
- Notify SHaW of any changes to the work activity that may impact on occupational exposure to hazardous substances / harmful agents, and where occupational hygiene monitoring may need to be repeated.

5.5 Safety, Health and Wellbeing

SHaW are responsible for:

- Setting the requirements of this Standard, and ensuring that any related and appropriate training is available to meet the requirements of this Standard;
- Liaising with departments to arrange occupational hygiene monitoring based on their needs;
- Co-ordinating the dissemination of the occupational hygiene report from the Occupational Hygienist to departments;
- Liaising with the Occupational Health Service where health surveillance is an outcome of occupational hygiene monitoring;
- The provision of competent health and safety advice, liaising with the Occupational Hygienist and the Occupational Health Service for specialist advice required;
- Storing occupational hygiene monitoring reports for the necessary retention period;
- Managing the reporting of safety related incidents reported through SIRIS;
- Implementing the Occupational Health and Safety Management System audit to ensure monitoring compliance with this standard.

5.6 Occupational Hygienist

In relation of this OHS Standard, the Occupational Hygienist is responsible for:

- Assisting HoDs to meet their statutory obligations by providing occupational hygiene monitoring where identified by risk assessment;
- Liaising with SHaW to arrange both scheduled and non-scheduled occupational hygiene monitoring for departments;
- Providing occupational hygiene reports to SHaW following occupational hygiene monitoring, and providing additional information as required;
- Providing information / assessment of potential exposure to hazardous agents prior to work commencing and prior to any occupational hygiene monitoring being undertaken;
- Providing specialist advice on occupational hygiene matters when requested;
- Recommending a referral to the Occupational Health Service to discuss the appropriate health surveillance requirement;
- Ensuring that the occupational hygiene service provided meets the key performance indicators of the contract awarded.

5.7 Occupational Health Service

In relation to this OHS Standard, the Occupational Health Service is responsible for:

- Assisting HoDs to meet their statutory obligations by providing health surveillance where identified;
- Liaising with the HoD or other nominated departmental staff to implement a programme of health surveillance where required;
- Receiving and reviewing occupational hygiene Monitoring reports where health surveillance is recommended;
- Providing information on occupational health related issues;
- Keeping medical records in a suitable form for at least 40 years from the last date of entry.

5.8 All Staff

In relation to this OHS Standard, all staff are responsible for:

- Complying with the significant findings of the risk assessment(s);
- Complying with Standard Operating Procedures and Safe Methods of Work;
- Completing relevant training;
- Wearing any PPE supplied to them appropriately, and ensuring its safe storage;
- Participating in occupational hygiene monitoring where required;
- Participating in the occupational health surveillance programme where required;
- Reporting incidents via the SIRIS online webform.

6. OCCUPATIONAL HYGIENE

6.1 When to request advice and monitoring

The following sections provide guidance on identifying where occupational hygiene monitoring is required. Specific guidance for a range of hazardous agents can be found in the Appendices.

The requirement for occupational hygiene monitoring should be considered:

6.1.1 At the design stage

Advice should be sought from the Occupational Hygiene Service via SHaW (see Section 6.2) as early as possible in the design stage of a new process or activity that may impact health through exposure to hazardous agents. This can often lead to eliminating or reducing hazards at source (see Section 6.1.2), thus avoiding the necessity to retrofit costly control measures at a later stage.

6.1.2 When determined by risk assessment

The process of risk assessment should be used to identify whether particular aspects of the working environment need to be monitored. The hierarchy of control (see Guidance Note on Undertaking a Risk Assessment) should be used to prioritise eliminating or reducing the hazard at source in the first instance.

Valuable sources of information such as specific legislation and their Approved Codes of Practice and Guidance (e.g. Control of Noise at Work, Control of Vibration at Work, Control of

Substances Hazardous to Health etc.), manufacturers' handbooks, and industry best practice can be used to inform the risk assessment and therefore the requirement for occupational hygiene monitoring.

6.1.3 Where a noise or vibration exposure action value is likely to be reached

The Control of Noise at Work Regulations 2005 and The Control of Vibration at Work Regulations 2005 set EAVs that if reached requires action to be taken to introduce technical or organisational measures to reduce exposure to the hazardous agent. General guides can also be used, for example:

- Noise monitoring may be required if people need to raise their voices to carry out a normal conversation when about 2 metres apart, for at least part of the day.
- Vibration monitoring may be required where the use of vibration generating equipment is regular and / or prolonged.

6.1.4 When vapours, fumes or dusts are released regularly

Where there is uncertainty about the levels of airborne contaminants generated by a work activity, or the consequences of exposure are significant, or the need to confirm the effectiveness of the risk control measures utilised, then workplace exposure monitoring should be requested. EH40/2005 Workplace Exposure Limits contains a list of WELs for use with the COSHH Regulations 2002 (as amended).

6.1.5 When there is exposure to extremes of hot or cold environments

These circumstances may indicate that monitoring and advice are required to ensure appropriate controls are in place.

6.1.6 Where an existing process has significantly changed

Where significant changes to a work activity are planned e.g. relocating the work activity to a new location or introducing a new item of equipment, and where occupational hygiene monitoring has already been undertaken on the original work activity, then further monitoring may be required to ensure the change does not have a negative impact on health.

6.1.7 Where symptoms of ill health have been identified

Where symptoms of ill health become apparent work should be stopped immediately and advice sought from the Occupational Health Service, and occupational hygiene monitoring may be arranged through SHaW if required.

6.2 How to request advice and monitoring

Where the need for occupational hygiene monitoring is identified, or where there is a request for advice on monitoring due to uncertainty, then Form S28 should be completed and returned to SHaW.

Where a review of monitoring is required after a period of time (normally three years from previous monitoring or sooner if needed) then Form S28 should be completed and returned to SHaW.

Form S28 can be found in the Appendices to this document, and on the SHaW website.

6.3 What happens during the monitoring process

6.3.1 Arranging the visit

Upon receipt of the request form, SHaW will contact the Occupational Hygienist and Department to arrange a suitable date to visit the work location to undertake monitoring. The Occupational Hygienist may carry out a pre-monitoring visit to assess the area and processes to determine if monitoring is necessary. SHaW will co-ordinate both pre-monitoring and monitoring visits.

6.3.2 Preparing for the visit

The equipment, chemical or process generating the hazard must be available for operation on the day of monitoring. Person(s) involved in the process or operating equipment must also be available. If a monitoring visit has been arranged and circumstances change, the departments must notify SHaW at least 24hours in advance to re-arrange the visit.

6.3.3 The monitoring process

Personal monitoring: Operators of equipment or those who may be exposed to a hazardous agent may be provided with a personal monitor, depending on the hazard being monitored. The device is usually attached to a collar or lapel and should not interfere with work being carried out or present a risk to the wearer. The monitor will be worn for a sufficient amount of time in order to gain a representative sample of typical exposure to the hazard. Depending on the work activity this will vary from a few minutes to half an hour or longer in some situations.

Static (background) monitoring: Static, or background, monitoring will be conducted to measure the general levels of the hazardous agent (e.g. airborne contaminant, temperature etc). A device will usually be sited within the work location for a set period of time during which the device should not be interfered with. The monitor will be left in situ for a sufficient amount of time in order to gain a representative sample of typical exposure to the hazard. Depending on the work activity this will vary from a few minutes to half an hour or longer in some situations.

6.3.4 Verbal feedback

When monitoring on site is concluded, the Occupational Hygienist may be able to provide a verbal report back on the initial findings to the members of staff who have participated in the monitoring and their supervisor or line manager. In most cases however the data collected by the monitors will need to be analysed. The Occupational Hygienist will provide a written report once the results have been analysed.

6.4 Occupational Hygiene Monitoring Report

A copy of the monitoring report produced by the Occupational Hygienist will be sent to SHaW who will forward the report to the person who originated the request and the DSC if not the originator of the request. Where appropriate it will make recommendations on what action needs to be taken to ensure harm to health is eliminated or at least reduced to as low a level as possible.

Where monitoring indicates that exposure levels are at or above acceptable limits the Occupational Hygienist will advise SHaW immediately. SHaW will liaise with the Department to take immediate corrective action. This may mean the work activity has to stop until additional controls are implemented or suitable PPE is provided or until the hazard can be controlled by more suitable control measures.

If occupational health surveillance is recommended (see Section 7) the Occupational Health Service will also be provided with a copy of the report.

Upon receipt of the report departments must:

- Implement the recommendations made in the report as soon as possible. This can be aided by the creation of an action plan detailing action required, persons responsible and timescale for completion. Where further advice is required about the control measures SHaW can be contacted.
- Communicate the monitoring results to those involved in the work activity so that they are aware of the risks to their health and how these risks can be reduced.
- Where health surveillance is recommended, discuss arrangements with the Occupational Health Service (see Section 7) to set up a Health Surveillance program.
- Ensure the monitoring report and progress with implementation of the recommendations is discussed at the Departmental Safety Committee.

7. Occupational Health Surveillance

Health surveillance is often confused with occupational hygiene monitoring, however the two are very different processes. Occupational hygiene is about monitoring exposure to hazardous agents, whilst health surveillance is about systematically monitoring for early signs of work-related ill health

in persons exposed to certain health risks. Occupational hygiene monitoring can help to identify the requirement for occupational health surveillance. Similar to occupational hygiene monitoring, the information obtained from health surveillance can help to confirm that the control measures used are effective or where further action may be required.

Those requiring occupational health surveillance must be allowed the time to complete necessary questionnaires and attend the Occupational Health Service within work time. All employees who are identified under a health surveillance programme by departmental risk assessment are legally required to co-operate with the health surveillance programme by completing and returning health surveillance questionnaires and by attending the Occupational Health Service health surveillance assessment appointments. The Occupational Health Service can also provide advice on the health surveillance required for a specific workplace risk during the planning stages before a work activity starts.

Individual results will be discussed at the time of the appointment. Where concerns are raised, more frequent health surveillance or assessment may be required either by an Occupational Health Nurse or Physician. Health records must be kept by departments as part of their overall management of the Occupational Health Surveillance Programme. Health record contains information about the employee details, where they work, the hazards they have been exposed to and their fitness to continue to be exposed to those hazards. They must not contain confidential medical information unless you have the worker's written consent. Any medical records are treated as confidential and stored confidentially by the Occupational Health Service.

When a health surveillance assessment is completed, the Occupational Health Service will provide the department with a report of the results advising whether there are any health issues emerging, no medical information will be disclosed without prior consent. If the person having the health surveillance declines for the result to be sent to their department, then the department can take action, including preventing the person from work involving the hazard for which they are having health surveillance.

For further information on health surveillance programmes at the University of Strathclyde please visit the Occupational Health website and the Occupational Health Service Local Rule, or contact occupationalhealth@strath.ac.uk.

8. Compliance

- Control of Substances Hazardous to Health Regulations 2002 (as amended)
- Control of Noise at Work Regulations 2005 -
- Control of Vibration at Work Regulations 2005 - Guidance on the Regulations -
- Workplace (Health, Safety and Welfare) Regulations 1992
- Health Surveillance at Work (HSG 61) - HSE Books ISBN 978 07176 1705 0
- Temperature - Micro Site
- Classification and labelling of chemicals. - GHS Micro Site

APPENDIX 1.

1. NOISE

For further information on the control of noise refer to the OHS Noise Standard. The following provides a brief overview occupational hygiene monitoring of noise.

1.1 Noise generating equipment

Noise may be generated by items of work equipment, for example:

- Grass cutting equipment;
- Abrasive wheels;
- Metal cutting equipment;
- Woodworking machines;
- Musical instruments;
- Noise generated by a combination of sources e.g. background noise in a workshop.

1.2 Impact on Health

Excessive noise can damage the hearing of those exposed to it. This damage can be of a temporary nature lasting from a few minutes to a few days. Regular exposure to excessive noise can cause the destruction of certain inner ear structures, which results in a loss of hearing, which is permanent and irreversible.

1.3 Legal Requirements

The Control of Noise at Work Regulations (2005) is the primary set of legislation that regulates the use of noise at work. The aim of the regulations is to ensure that workers' hearing is protected from excessive noise at their place of work and requires employers to prevent or reduce risks to health and safety from noise.

There are specified limits defined in the regulations which require action to be taken and others that must not be exceeded. Some of these values are based on a combination of level of continuous noise and duration of exposure in one day. This is referred to as the daily (or weekly) personal exposure and is measured in decibels, dB. The first level at which action is required to prevent damage to hearing is 80dB and the second which requires further action is 85dB. These are referred to as the lower and upper EAVs. A level of 87dB must not be exceeded and this is referred to as the exposure limit value.

1.4 When is Noise Monitoring Appropriate?

Where significant noise exposure, whether intrusive/nuisance noise, or above the lower exposure value (80dB) is likely then it **must** be included in a risk assessment.

To assist in the risk assessment process, then the following guidelines can be used. This list is not exhaustive, and where there is doubt over the need to include noise in the risk assessment or arrange for noise monitoring, guidance can be sought from the DSC, or SHaW:

- The noise is intrusive but normal conversation is possible, e.g. as noisy as a busy road, a vacuum cleaner or a crowded restaurant or worse, and is present for most of the working day;
- Employees need to raise their voice to conduct a conversation at a distance of approximately 2m for at least part of the day;
- The work involves the use of powered tools or machinery for more than 15 minutes of the day;
- The work involves noisy tasks, for example construction, demolition, woodworking, engineering, forging etc.;
- Noises generated by impact or explosive sources (hammering, forging pneumatics, hydraulics etc.).
- The presence of symptoms which may indicate a risk of exposure e.g. ringing in their ears, difficulty in hearing in a social setting etc.

1.5 Benefits to Departments of Noise Monitoring

Where it is identified that noise monitoring is required, it brings about numerous benefits, including:

- Providing accurate measurements of noise emitted from work equipment and the working environment to establish personal and background exposures;
- An evaluation of the risks to hearing to support the recommendations for reducing exposure;
- Identifying the requirement for health surveillance;
- An assessment of the effectiveness of existing noise control measures;
- An assessment of the effectiveness of hearing protection in the particular working environment;
- The protection of health;
- Legal compliance; and
- A demonstration of the department's commitment to preventing injury and ill health.

1.6 Departmental Duties

The University has a duty to assess the risks from noise to health, where daily (or weekly) personal exposure is at or above the lower exposure action value or at the exposure limit value. Departments are required to:

- Identify work activities and working environments where noise is intrusive for most of the day;
- Arrange for occupational noise monitoring through Safety, Health and Wellbeing, using the S28 form;
- Assess the risks arising from noise, using the monitoring results;
- Take action to reduce the noise exposure that produces those risks;
- Provide hearing protection if noise exposure cannot be reduced sufficiently by using other methods;
- Where hearing protection is required, provide suitable storage and regular checks and maintenance of the protection
- Supervise the wearing of hearing protection, where necessary;
- Ensure the legal limits on noise exposure are not exceeded;
- Provide adequate information, instruction and training.; and
- Arrange health surveillance, through the Occupational Health Service, where there is a risk to hearing.
- For further information see the Occupational Health Surveillance website**.**

APPENDIX 2.

1. VIBRATION

For further information on the control of vibration refer to the Local Rule for Vibration at Work. The following provides a brief overview of occupational hygiene monitoring of vibration.

1.1 Hazards

Vibration through the hands and arms (hand arm vibration, HAV) may be generated by items of equipment, for example:

- Grass cutting equipment;
- Hand-held power tools;
- Pedestal grinders;
- Chainsaws etc..

Vibration through the feet or seat of work (whole body vibration, WBV) equipment may be generated by items of equipment, for example:

- Ride on grass cutting machines;
- Tractors.

1.2 Impact on Health

Regular and prolonged exposure of hands and arms to vibration can affect the nerves, blood vessels, muscles and joints of the hands and arms with and can impact on carrying out everyday tasks, and can lead to permanent ill health effects and disability. These include any combination of tingling and numbness in the fingers; loss of strength in the hands; fingers going white (blanching) and becoming red and painful on recovery which can lead to significant disability.

Whole-body vibration is transmitted through the seat or feet of employees who drive mobile machines, or other work vehicles, over rough and uneven surfaces as a main part of their job. Large shocks and jolts may cause health risks including back-pain. Those more at risk from harm are older and younger people or those with pre-existing back or neck problems and pregnant workers.

1.3 Legal Requirements

The Control of Vibration at Work Regulations (2005) is the primary set of legislation that regulates vibration at work. The aim of the regulations is to ensure that workers are protected from excessive vibration at their place of work and requires employers to prevent or control exposure to prevent ill health conditions.

Hand arm vibration: There are specified limits which require action to be taken and others that must not be exceeded. These limits are based on a combination of the amount of mechanical vibration and duration of exposure in one day. This is referred to as the daily personal exposure and is measured in metres per second squared, m/s^2. The first level at which action is required to prevent damage is $2.5m/s^2$. This is referred to as the exposure action value. A level of $5m/s^2$ must not be exceeded and this is referred to as the exposure limit value.

Whole body vibration: There are specified limits which require action to be taken and others that must not be exceeded. These limits are based on a combination of the amount of mechanical vibration and duration of exposure in one day. This is referred to as the daily personal exposure and is measured in metres per second squared, m/s^2. The first level at which action is required to prevent damage is $0.5m/s^2$. This is referred to as the exposure action value. A level of $1.15m/s^2$ must not be exceeded and this is referred to as the exposure limit value.

1.4 When is Vibration Monitoring Appropriate?

Manufacturers' handbooks will provide an indication of the vibration levels emitted from a particular item of equipment. However, in order to determine the actual amount of vibration

generated, measurements can be carried out by the Occupational Hygiene Service. This will determine if the exposure action value or exposure limit value have been exceeded.

Users of vibration generating equipment experiencing health symptoms may indicate a risk of exposure that requires further investigation into vibration levels.

1.5 Benefits to Departments of Vibration Monitoring

Where it is identified that vibration monitoring is required, it brings about numerous benefits, including:

- Providing accurate measurements of vibration emitted from work equipment to establish personal exposures;
- An evaluation of the risks to health to support recommendations for reducing exposure;
- Identifying the requirement for health surveillance;
- An assessment of the effectiveness of existing vibration control measures;
- The protection of health;
- Legal compliance; and
- A demonstration of the department's commitment to preventing injury and ill health.

1.6 Departmental Duties

The University has a duty to assess the risks from vibration to health, where daily personal exposure is at or above the exposure action value or the exposure limit value. Departments are required to:

- Identify work activities which generate vibration;
- Arrange for occupational vibration monitoring through SHaW;
- Assess the risks to employees from vibration at work, using the monitoring results;
- Take action to reduce the vibration exposure that produces those risks;
- Ensure the legal limits on vibration exposure are not exceeded;
- Provide employees with information, instruction and training; and
- Arrange health surveillance, through the Occupational Health Service, where there is a risk to health from vibration.
- For further information see the Occupational Health Surveillance website**.**

APPENDIX 3.

1. DUSTS, FUMES, CHEMICALS AND VAPOURS

For further information on the control of substances hazardous to health, refer to The Local Rule for the Control of Substances Hazardous to Health, and associated Guidance Note. The following provides a brief overview of occupational hygiene monitoring of substances hazardous to health in relation to airborne exposure.

1.1 Hazards

Examples of substances that may require monitoring are as follows:

HAZARD	EXAMPLE
Dusts	Generated from individual items of equipment such as: • Woodworking machines Generated from processes such as: • Commercial baking, • Mixing plaster cast powder • Grinding plant material
Fumes	Solder Fumes Welding Fumes
Vapours	Solvent Vapours such as: • Paints • Varnishes • Adhesives • Degreasers
Chemicals	Other chemicals not mentioned above that are classified as presenting a risk to health through inhalation and carries a hazard statement such as: • H331 Toxic if Inhaled; • H332 Harmful if Inhaled; • H333 May be harmful if inhaled; • H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled; • H335 May cause respiratory Irritation; • H350 May cause cancer; • H351 Suspected of causing cancer.

1.2 Impact on Health

Equipment and processes that generate dusts, fumes and vapours could be inhaled and potentially lead to respiratory problems including occupational asthma. In addition, fumes may cause irritation to the eyes, nose and throat. Some solvents can also cause headaches, nausea and dizziness. In very high concentrations solvents can lead to unconsciousness and death.

1.3 Legal Requirements

The Control of Substances Hazardous to Health (As Amended) Regulations 2002 (COSHH) is the primary set of legislation that regulates exposure to substances hazardous to health. The aim of the regulations is to ensure that workers are prevented from being exposed to hazardous substances or where this is not possible to ensure they are adequately controlled.

Exposure to airborne contaminants is measured against established Workplace Exposure Limits (WEL's). A list of WEL's is published and updated by the Health and Safety Executive in a document called EH40 available on the HSE's website.

1.4 When is Air Monitoring Appropriate?

The risk assessment process may have identified the presence of an airborne contaminant but there is uncertainty as to whether the level of contaminant is likely to cause ill health or whether it exceeds the WEL. Air monitoring can confirm if the level of airborne contaminant generated is likely to exceed the WEL and / or cause ill health.

Where suitable controls are installed e.g. local exhaust ventilation, to eliminate or reduce exposure may be necessary to:

a) Conduct initial monitoring to confirm controls are appropriate for the level of contaminant produced; and
b) Conduct regular monitoring to ensure the controls remain effective.

Where symptoms of ill health are experienced, this may indicate a risk of exposure that requires further investigation into levels of airborne contaminants.

1.5 Benefits to Departments of Air Monitoring

Where it is identified that air monitoring is required, it brings about numerous benefits, including:

- Providing accurate measurements of airborne contaminants encountered in the workplace to establish personal exposures;
- Evaluation of the risks to health;
- Determining whether health surveillance is required;
- Determining the effectiveness of existing control measures;
- The protection of health;
- Recommendations for reducing exposure;
- Legal compliance;
- A demonstration of the department's commitment to preventing injury and ill health.

1.6 Departmental Duties

The University has a duty to assess the risks from airborne contaminants to health and ensure the workplace exposure limits are not being exceeded. Departments are required to:

- Identify work activities which generate airborne contaminants;
- Arrange for air monitoring through SHaW;
- Assess the risks to staff from hazardous substances, using the monitoring results;
- Take action to reduce the exposure that produces those risks through implementation of administrative or engineering controls;
- Provide employees with information, instruction and training; and
- Arrange health surveillance, through the Occupational Health Service, where there is a risk to health from airborne contaminants.
- For further information see the Occupational Health Surveillance website.

APPENDIX 4

1. EXTREME TEMPERATURES

For further information on the working in extreme temperatures, refer to The Local Rule for the Guidance on Managing Workplace Environment Requirements. The following provides a brief overview of occupational hygiene monitoring of temperature.

1.1 Hazards

Working in extreme temperatures; hot or cold, for example:

- Glass blowing workshop;
- Cold store.

1.2 Impact on Health

The term 'thermal comfort' describes a person's psychological state of mind and is usually referred to in terms of whether someone is feeling too hot or too cold. Because thermal comfort is psychological, it may affect overall morale.

Exposure to extreme temperatures can however result in physical as well as psychological symptoms.

Excessive heat can lead to:

- Poor concentration;
- Muscle cramps;
- Heat rash;
- Severe thirst - a late symptom of heat stress;
- Fainting;
- Heat exhaustion - fatigue, giddiness, nausea, headache, moist skin; and
- Heat stroke - hot dry skin, confusion, convulsions and eventual loss of consciousness.

Excessive cold temperatures can lead to:

- Shivering;
- Fatigue;
- Loss of co-ordination, and
- Loss of dexterity.

1.3 Legal Requirements

Management of Health and Safety at Work Regulations 1999 require a suitable and sufficient risk assessment to be conducted of the risks staff will encounter in their work activity.

The Workplace (Health, Safety & Welfare) Regulations 1992 require temperatures within workrooms to be reasonable and where this is impracticable because of hot or cold processes, measures should be taken to provide a reasonably comfortable temperature. The guidance to the regulations provides a range of 13-16 degrees Celsius.

The most commonly used indicator of thermal comfort is air temperature. Whilst it is an important indicator to consider, air temperature alone is neither a valid nor an accurate indicator of thermal comfort or thermal stress. Air temperature should always be considered in relation to other environmental (air temperature, radiant temperature, air velocity and humidity) and personal factors (clothing insulation, metabolic rate).

1.4 When is Environmental Monitoring appropriate?

Environmental monitoring may be required in the following circumstances:

- When the risk assessment identifies that a work activity is conducted in an environment where the temperature is excessively above or below the recommended workroom temperatures;
- When health symptoms may indicate a risk of exposure that requires further investigation into temperature, air velocity and humidity.

- Where the Occupational Health Service require detailed environmental information about a work location when undertaking an assessment for fitness for work in extreme temperatures. This information can be used in conjunction with individual's health condition, medication and physical characteristics and details of the work activity e.g. work rate and duration of exposure to assess their suitability to work in such an environment.

1.5 Benefits to Departments of Environmental Monitoring

Where it is identified that environmental monitoring is required, it brings about numerous benefits, including:

- Providing accurate measurements of temperature and humidity in the workplace;
- Evaluation of the risks to health;
- Determining the effectiveness of existing control measures;
- The protection of health;
- Legal compliance; and
- A demonstration of the department's commitment to preventing injury and ill health.

1.6 Departmental Duties

The University has a duty to assess the risks from extremes of temperature to health. To fulfil this duty, departments are required to:

- Identify work activities where employees are exposed to extremes of temperature;
- Arrange for thermal comfort monitoring through SHaW;
- Assess the risks to staff, using the monitoring results;
- Take action to reduce exposure that produces those risks through implementation of administrative or engineering controls; and
- Provide employees with information, instruction and training.

APPENDIX 5 – FORM S28

REQUEST FOR OCCUPATIONAL HYGIENE MONITORING OR ADVICE

Department:					
Contact Name:					
Job Title:					
Contact Tel:					
Service Requested:	**Advice**	Noise ☐	Vibration ☐	Air ☐	Environmental ☐
	First time Monitoring	Noise ☐	Vibration ☐	Air ☐	Environmental ☐
	Follow up Monitoring:	Noise ☐	Vibration ☐	Air ☐	Environmental ☐

Note, if requesting follow up monitoring, please attach a copy of the previous Occupational Hygiene Report.

Please provide details of the equipment, chemical and/or process and any relevant information about the hazard
e.g. vibration levels contained within manufactures' handbook, quantities of chemical used etc
Please provide details of any existing control measures
e.g. local exhaust ventilation, PPE, maintenance / inspection regimes.

eRISK ID Ref number:	
eCOSHH ID Ref number:	*If applicable.*

Location(s) of monitoring:	*Provide the location(s) where the equipment is sited / processes are undertaken.*
Dates of Availability for Monitoring:	*Provide dates when the equipment or process and personnel who operate the equipment/process will be available for monitoring/advice*.