

Purpose

This procedure outlines the requirements for the management of chemical spills in the workplace to minimise effects to health and safety from exposure to chemical spills and reduce the impact on the environment. The procedure applies to all University staff students and contractors in all areas of the University where chemical substances are transported, purchased, stored, handled, or used, including vehicles of visitors or suppliers who bring substances into the University that are potentially hazardous

The procedure provides general guidance and therefore each laboratory or other work area that use chemical substances should have specific procedures for the particular types of substances used within the workplace or brought onto the premises.

Definitions

Personal Protective Equipment (PPE) - equipment to protect a person working in a hazardous environment.

Level A (PPE) – to be worn when the highest level of respiratory, skin, eye, and mucous membrane protection is needed. It consists of fully encapsulating, chemical resistant clothing and self-contained breathing apparatus.

Level B (PPE) - should be used when the highest level of respiratory protection is required, but a lesser level of skin and eye protection is sufficient.

Level C (PPE) - can be used when proper respiratory protection can be afforded by air-purifying, canister-equipped protective breathing devices. It provides the same level of skin protection as Level B, but a lower level of respiratory protection.

Level D (PPE) - consists primarily of a standard work uniform. It provides no respiratory protection and affords only minimal skin protection.

Bund – is an embankment or wall of brick, stone, concrete, or other impervious material, which may form part of or the entire perimeter of a compound and provides a barrier to retain liquid. The bund is designed to contain spillages and leaks from liquids used, stored or processed above ground and to facilitate cleanup operations.

Chemical Spill Guides - Guides to assist in the emergency management of particular classes of spill ranging from acids to biological spill management. These guides outline the steps to take and the PPE to wear to protect both the clean up team/person and the environment.

Designated Hazardous Substance – a hazardous substance that is:

1. listed on Australian Safety and Compensation Council list of Designated Hazardous Substances above its lowest cut-off concentration or
2. that is determined to be a hazardous substance by the manufacturer or importer of the substance on the basis of the Australian Safety and Compensation Council; Hazardous Substances Information System.

Hazardous Substance – a substance that contains ingredients that may be harmful to health. This includes substances that are lethal and non-lethal, corrosive, toxic, irritant, sensitising, mutagenic, teratogenic or carcinogenic. The concentration level of each ingredient in a mixture is taken into account in determining whether the mixture as a whole is determined to be hazardous.

Dangerous Goods – a hazardous substance also defined by the Dangerous Substances Act, 1979 and the Australian Dangerous goods code to be dangerous. They are classified on the basis of immediate physical or chemical effects that may impact on people, property or the environment – explosive, flammable, corrosive, chemically reactive, highly combustible, acutely toxic, radioactive or infectious.

Material Safety Data Sheet (MSDS) – information sheets that provide technical information in relation to substances. These sheets are obtained directly from the manufacturer or through the University ChemWatch MSDS database. Be aware of the possible differences between the manufacturer's and generic MSDS's.

Risk - the probability (likelihood) of harm or damage occurring from exposure to a hazard, and the likely consequences of that harm or damage.

Self Contained Breathing Apparatus (SCBA) - An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Roles and Responsibilities

Line Managers are responsible for ensuring that:

- this procedure is implemented within their area of responsibility
- all necessary equipment is available and maintained in the case of a chemical spill and they are clearly labelled and signed
- risk assessments are carried out to identify risk control measures to protect the health and safety of people and potential harm to the environment
- procedures are written following the identification of specific risks relevant to local areas
- all staff receive appropriate training to deal with chemical spills where identified as necessary
- all supervisory staff are aware of the legal obligations and UniSA standards regarding environmental pollution from chemical spills

- all staff that use, store or manage chemical substances as a minimum requirement complete the online learning programs in environmental awareness and chemical spill management
- appropriate personnel are informed of any chemical spills and external providers contracted to clean up where necessary.

Supervisors are responsible for ensuring that:

- this procedure is implemented within their area(s) of responsibility
- information is provided to all relevant staff and students to safely clean up spilled chemical substances. This should include emergency services contact details, building evacuation team contacts, and other staff as appropriate, location of equipment and materials such as self contained breathing apparatus or respirator locations
- appropriate equipment is cleaned, stored and maintained by qualified persons
- Chemical Spill Management Facilities Inspections are carried out as per Workplace Inspection procedure at least quarterly
- all new area staff are inducted in environmental awareness and chemical spill management

Staff are responsible for ensuring that:

- they do not place themselves or others at risk of injury
- they place personal safety first - keep clear of a spill unless trained in spill control and clean up
- immediately reporting of chemical spill to their supervisor
- only trained and competent staff attempt to clean up a chemical substance spill
- they know where MSDS's are kept, or how they can be accessed
- online learning modules in environmental awareness and chemical spill management are completed
- written procedures provided for spill control are followed
- spill control equipment is used in the proper manner
- equipment is stored and maintained as appropriate

Procedure and Guidelines

1. Identification of Potential Chemical Spills

The hazard management process requires the identification of reasonably foreseeable hazards. Once a potential chemical spill hazard has been identified a risk assessment must be completed [OHSW2](#) – Risk Assessment Worksheet. The risk assessment is to identify risk control measures to reduce the risk and harm to people and the environment.

2. Risk Assessments

When a potential hazard of a chemical spill has been identified the relevant line manager will ensure that a risk assessment using Form [OHSW59](#) – Risk

Assessment – Chemical Spill and Environmental Risk Worksheet or similar is completed.

The risk assessment is to include the following factors:

- The nature of the spilled chemical (high/low hazard material)
- The quantity spilled (large/small amounts)
- The location of the spill (difficult access, public site / bunded area)

When evaluating risks associated with chemical spills, the following points need to be considered:

- is special training required to handle the situation?
- is special equipment required to clean up the spill? (i.e. Self Contained Breathing Apparatus (SCBA), Personal Protective Equipment (PPE etc)
- are special procedures required to clean up the spill? e.g. pumps, hoses etc

Where the response is HIGH to any of the above factors then the spill must be considered as HIGH RISK.

All HIGH RISK spills should be managed by the Campus Facilities Manager. Low Risk spills may be handled by area workers under the direct supervision of the relevant laboratory technician.

3. Risk Control

Measures to eliminate or control the potential risk shall be developed in the following order of controls, known as the hierarchy of controls (see also Form [OHSW59](#) - Risk Assessment – Chemical Spill and Environmental Risk Worksheet)

1. Elimination – Complete removal of the hazard or risk of exposure
2. Substitution –replacing the substance or work process with a less hazardous means
3. Isolation – through distance or enclosure
4. Engineering – includes redesigning the work area, fixing rollover bund guard(s) or maintenance
5. Administrative – includes standard operating procedure, supervision, training, rotation and signage
6. Personal protective equipment – includes protective clothing, safety shoes, goggles, safety glasses and gloves.

The completed risk assessment Form [OHSW59](#) or similar is to be forwarded to the relevant Line Manager and laboratory supervisor as soon as practical after completion.

The Line Manager is to ensure that the recommended control measures are implemented where appropriate.

4. Preparation for Chemical Spills

Staff that use or manage chemical substances must have an understanding of the Material Safety Data Sheet including the special requirements for spill control such as the type of fire extinguisher required, incompatible substances, and reactivity with substances such as water or air.

Where a substance is unknown, or is an experimental substance that does not have an MSDS always treat as HIGH RISK.

Wherever practicable, the storage and use of the chemicals should be in an area which can contain or restrict the flow from a spill site. On benches, this can be assisted by a raised lip at the front of the bench, or by the use of spill trays.

Spill Kits

Spill kits should be available for use where assessed as required. The contents of the spill kit should be relevant to the area and the potential spill, this may include such things as;

- an amount of vermiculite sufficient to deal with a spillage of the largest container of non corrosive liquids used in the immediate area is to be available
- a similar amount of Sodium Hydrogen Carbonate is to be available for spills of corrosive liquids
- a couple of bags of kitty litter, saw dust or sand to absorb spilt liquids
- brooms, dustpans and a square mouth shovel to sweep up the absorbent material
- absorbent pillows or booms to contain larger liquid spills and prevent spills entering drains
- heavy duty plastic bags or plastic drums (with a lid) to contain hazardous material prior to disposal
- appropriate personal protective clothing (such as chemical resistant gloves, safety glasses)
- a wheelie bin to contain all the above equipment and store hazardous material prior to disposal

Ensure that the spill kit is clearly labelled and located in an easily accessible position for all staff.

Ensure that all staff are aware of and can access the Chemical spill management and chemical spill guidelines, and know how to use the spill kit in case of an emergency.

Spill kits should be restocked following use and the contents should be checked on a monthly basis.

5. Spill Management Requirements

The following are the minimum mandatory chemical spill facility requirements

Loading Areas/ Bays

- Permanently Installed Secure Roll Over Bunds
- Adequate supply of emergency drain covers
- 240 Litre Chemical spill Station (wheelie bin variety)
- Chemical Storage Areas
- All areas where chemicals are stored shall have access to a Spill Kit (within 50 metres) of the storage area
- Chemical Storage Cabinets
- Trays should be provided that are compatible with the contents, and which will contain the contents of the two largest glass containers, or the largest metal or plastic container.
- Chemical Waste Storage Areas
- Adequate supply of emergency drain covers
- 240 Litre Chemical Spill Station (wheelie bin variety)
- Adequate ventilation

Laboratories

- 1 Laboratory Spill Kit per Laboratory

6. Cleaning up a Chemical Spill

In the event of a chemical spill the following immediate actions are required to be taken: Chemical Spill guides have been prepared to assist line managers in the clean-up of particular spills, Forms OHSW60 - Chemical Spill Guides and [OHSW58](#) - Chemical Spill Incident & Risk Assessment Response Checklist Record should always be used in these circumstances.

Immediate Actions (details repeated in OHSW58)

- clear the affected area
- check for any persons involved
- personnel contaminated with chemicals must be decontaminated for at least 15 minutes (emergency shower) and taken for medical examination
- administer first aid
- isolate the spill (if safe to do so)
- contact the Campus Facilities Manager for high risk spills (see section 6.1)
- contact the Laboratory Technician for low risk spills (see section 6.2)
- gather any information possible, ie identify the material and quantity, gather relevant MSDS and assess any immediate risks.

The primary concern is to protect health and safety no action should be taken during an emergency response that directly or indirectly puts human health and safety at risk.

Circumstances Requiring Evacuation

- uncontrolled open flame
- uncontrolled compressed gas release
- any situation which poses imminent threat to human health or safety

When an evacuation alarm sounds, all persons should immediately exit the building and report to their assigned assembly area. Attempting to control potential sources of ignition should only occur if it can be accomplished without personal risk.

6.1 High Risk Spills

1. Contact the Campus Facilities Manager (88888) who will then inform security to inform them of the situation.
2. The Campus Facilities Manager (88888) should then contact the Technical Supervisor and inform them of the situation.
3. Contact Emergency Services by calling 000 or dialing (0) to get a line then 000 if calling from a University telephone (To be contacted in the first instance if the risk is great enough, but generally this is determined by the Chief Response Officer/Emergency Response Team).
4. Determine who will take responsibility for controlling the chemical spill situation, ie. Campus Facilities Manager, Fire Brigade etc.
5. Ensure appropriate University personnel are advised of the situation including the relevant Line Manager.
6. Follow any advice or information provided by the Campus Facilities Manager or Emergency Services.
7. The Campus Facilities Manager should determine the chemical(s) involved, how much has been spilt and the location of the spill.
8. The spill may be cleaned up by appropriate personnel trained in chemical spill clean up. If there are no appropriately trained personnel external contractors will be engaged to perform this function (contact OHSW services to obtain contact details for appropriate contractors).

Minimal requirements for staff to clean up high risk spills;

- Specific training – Any training for this must be endorsed by OHSW &IM Services
 - Self Contained Breathing Apparatus (SCBA) or respiratory protection appropriate to situation
 - Hard hat with face shield
 - Chemical resistant coveralls
 - Triple gloves
 - Chemical resistant boots
9. Advise SafeWorkSA (1800 777 209) of the chemical spill and the action taken.

Note: Area workers are not to attempt to clean up HIGH RISK spills unless they have had specific training in HIGH RISK spill clean up. Specific personnel with training or external contractors will manage the spills.

6.2 Low Risk Spills

1. Have at least two trained workers to handle the spill.
2. Laboratory supervisor/technician to supervise the clean-up of the spilled chemical substance.
3. Use the proper protective equipment.
4. Ensure fire protection is available for flammable spills.
5. Control the source.
6. Contain free liquids by damming, absorbing if appropriate.
7. Place all spill residues in an appropriate sealable container.
8. Decontaminate the affected area using an appropriate material.
9. Decontaminate the clean up equipment.
10. Analyse the area to ensure proper decontamination has taken place.
11. Examine walkways, floors, stairs equipment etc for other hazards or damage

Clean up

Area workers may clean up spills of low-hazardous materials eg (sodium chloride solid) under the direction of the laboratory technician

PPE to be worn

If the laboratory technician has any doubt, the laboratory supervisor must be contacted. The minimum personal protective equipment for low risk spills shall include:

- Laboratory coat fully buttoned up or disposable overalls
- Rubber gloves
- Rubber boots and
- Goggles

7. Debriefing

- All personnel involved in the clean up of the spilled substance should be debriefed after the spill has been resolved.
- All spill control supplies are to be restocked.
- All damaged or used equipment must be repaired or refilled.
- When the area is deemed clear, it can be re-opened for normal operations.

Training and Awareness

The University has developed online learning programs that deal with Environmental Awareness and Chemical Spill Management to provide staff with general information and awareness relating to the management of

chemical substances. It is required that any staff member who is responsible for the use, storage or management of chemical substances complete the online learning programs.

Specific training for chemical spill management is to be coordinated at the local level and recorded on the training register.

Documents/Forms

- Emergency Response Plan - Code 6: Chemical
- [OHSW2](#) – General Hazard Identification and Risk Assessment
- [OHSW10](#) - Substances Register
- [OHSW11](#) - Guide for Storage of Hazardous Substances
- [OHSW58](#) - Chemical Spill – Incident & Risk Assessment Response Checklist
- [OHSW59](#) - Risk Assessment – Chemical Spill and Environmental Risk Worksheet
- [OHSW60](#) - Chemical Spill Guides

Legislation

[Occupational Health Safety and Welfare Act 1986](#)

[Occupational Health Safety and Welfare Regulations 1995](#)

Dangerous Substances Act 1979

Environment Protection Act 1993

References

National Code of Practice for the Control of Scheduled Carcinogenic Substances NOHSC: 2014(1995)

Approved Code of Practice for the Labelling of Workplace Substances

National Guidance Note for the Labelling of Workplace Substances (NOHSC: 3013(1991))

Australian Code for the Transport of Dangerous Goods by Road or Rail

National Model Regulations for the Control of Scheduled Carcinogenic Substances NOHSC: 1011(1995)

Approved Code of Practice for the Control of Workplace Hazardous Substances

[University OHSW & IM Policy](#)

[University OHSW Strategic Plan 2009 - 2011](#) (PDF 158kb)

[University Injury Management Strategic Plan 2009 - 2011](#) (PDF 85kb)

University Research Policy RES-5.1 Bio-hazards Research

AS/NZS 4804:2001 - Occupational Health and Safety Management Systems – General guidelines on principles, systems and supporting techniques.