Managing Hazardous Chemicals at The Edge: Policy Proposals

**Summary of Conclusions:**

• Collaboration with other users of hazardous substances in the SLQ precinct will ensure the efficient and timely resolution of identified risks

• Documented generic risk assessments of current and proposed procedures will address many concerns to the extent required by the Code of Practice

• A register of dangerous goods held on site, together with appropriate SDS’s needs to be developed and maintained

• Separate storage for larger quantities of flammable liquids will obviate the need for most other specialised storage, particularly if only household strengths and quantities are stored in workspaces

According to the WorkSafe Australia Code of Practice for managing risks of hazardous chemicals in the workplace, persons conducting a business or undertaking who use chemicals in their workplace need to ensure the safe use, handling and storage of hazardous substances. The identity of hazardous chemicals in the workplace can usually be determined by looking at the label and the SDS, and reading what ingredients are in each chemical or product.

The relevant duties include:

1. maintaining a register and manifest (where relevant) of hazardous chemicals

and providing notification to the regulator of manifest quantities if required

1. provision of information, training, instruction and supervision to workers, including obtaining the current Safety Data Sheet (SDS) from the manufacturer, importer or supplier of the chemical
2. correct labelling of containers and pipework, using warning placards and outer warning placards and displaying of safety signs
3. identifying risk of physical or chemical reaction of hazardous chemicals and ensuring the stability of hazardous chemicals
4. provision of spill containment system for hazardous chemicals if necessary
5. controlling ignition sources and accumulation of flammable and combustible substances
6. provision and availability of fire protection, fire fighting equipment and emergency and safety equipment

Other requirements exist for quantities greater than usually held at this location.

The WHS Act also requires that you consult, co-operate and co-ordinate activities with all other persons who have a work health or safety duty in relation to the same matter, so far as is reasonably practicable, which implies that a co-ordinated plan across the whole of SLQ would be a best practice outcome.

In response to each of these requirements, the following actions are suggested:

1. **Preparing a register and manifest of hazardous chemicals.**

The register is a list of the product names of all hazardous chemicals used, handled or stored at the workplace accompanied by the current SDS (one that is not more than five years old) for each hazardous chemical listed.

A manifest is only required where the quantities of those hazardous chemicals exceed prescribed threshold amounts, and this is not relevant to the quantities currently in use at The Edge. An emergency plan need only be supplied to emergency services if the quantities of hazardous materials reach these threshold levels.

*Recommendation: That a register be prepared and required SDS’s be obtained.*

1. **Providing training and access to the SDS in the workplace.**

All workers and visitors liable to be exposed to hazardous materials should be made aware of the correct procedures for assessing risks, storage, handling and disposal. The SDS should be kept in a location near the work area where the substance is used, and all workers liable to be exposed to the chemicals should know how to access it. It is acceptable to provide this information in an electronic database, but a backup system of hard copies must be provided.

*Recommendation: Risk awareness should be a documented part of the induction process (a register may be implemented). A single system providing hard copies of relevant SDS’s be implemented, close to the bulk storage area.*

1. **Labelling of hazardous chemicals.**

Labelling could use signal words (eg: Danger), hazard statements (eg: Fatal if inhaled – a list of approved statements is in the Code), or pictograms (which are available in printable form that can be used on adhesive labels). Waste containers also need to be labelled. Sometimes, product labels will contain this information.

*Recommendation: As far as possible, use appropriately labelled source containers, and avoid decanting into unlabelled storage bottles. Develop a library of suitable labels that can be printed and applied as required.*

1. **Identifying and assessing risks.**

According to the Code, where the hazards and associated risks are well-known and have well established and accepted control measures, it may not be necessary to undertake a risk assessment, for example, where there are a small number of chemicals in a workplace and the hazards and risks are well understood.

In view of the fact that almost all of the chemicals in use at The Edge are common, household materials (eg: methylated spirits, bleach, vinegar etc), risk assessments need only be done when new and hazardous reagents are introduced.

In view of the fact that many Edge activities involve members of the public who may not be aware of risks that are well known to the employees, it would be advisable that any workshop activity that involves potentially hazardous materials or processes undergoes a risk assessment as part of the documentation process. This assessment may be basic and generic, and should be made available to presenters before the workshop is undertaken so that appropriate warnings can be included in the instructional activity. Detailed instructions are available in the Code.

*Recommendation: Risk assessments be completed and recorded in a suitable database whenever new hazards are introduced. Workshop documentation should include a completed Risk Assessment (even if a conclusion of no significant risk is made).*

1. **Providing spill containment.**

When a spill, leak or accidental release of hazardous chemicals occurs, appropriate actions must be taken to contain the hazardous chemicals within the workplace. This will mainly be achieved through appropriate storage in suitable cabinets, especially ensuring that incompatible materials are kept separate. Smaller quantities may be kept in work areas, but should be stored and used in a way that will reduce the potential for spillage (eg: store bottles in impervious plastic troughs, avoid glass storage bottles, ensure lids are kept closed). Clean up equipment should be available if release of the material to the environment presents an additional hazard.

*Recommendation: Safe storage cabinets for larger quantities of hazardous materials should be purchased and used. Generic procedures to avoid and clean up accidental spillages should be adopted and documented as part of the Risk Assessment process.*

1. **Controlling flammable and incompatible substances.**

It is important to keep flammable substances away from ignition sources (eg: 3m from power points), and incompatible substances Fumes also need to be considered. Hazardous chemicals should be physically separated from any chemicals or other things that may be incompatible. This is achieved by distance, barriers, or a combination of both barriers and distance. When storing chemicals on shelving or other storage systems, hazardous chemicals should not be stored above or below other chemicals or other things which may be incompatible, potentially interact or contaminate. This is particularly important where chemical oxidisers (eg: hydrogen peroxide) are involved. Similarly, concentrated acids should not be stored near bases (such as sodium hydroxide) since their reaction liberates considerable heat.

Sufficient independent storage locations should be available to maintain adequate separation of incompatible chemicals. For example, household quantities of basic chemicals (eg: caustic soda) or oxidisers (hydrogen peroxide) could be safely stored in separate work areas, with intervening spaces between incompatibles sufficient to prevent mixing should two containers break at the same time. A single dedicated storage cabinet could be provided for concentrated acids. Alternatively, the need for concentrated chemicals could be assessed, and avoided when possible.

*Recommendation: Separation of incompatible substances means that dedicated storage site for flammable liquids (alcohols, methylated spirits, paints, thinners etc) should be located at a safe distance (>5m) from storage cabinets for incompatible substances. Workplace procedures for separation of incompatible substances should be developed, documented and implemented as part of a generic risk assessment process.*

1. **Provision of fire and safety equipment.**

This is currently managed through institutional WHS processes, and can remain so. Any need for specialised protection or safety equipment should be identified as part of any risk assessment process, and implemented on an as needed basis.

*Recommendation: Continue liaison with institutional WHS processes to maintain overall safety. Include PPE as part of any risk assessment procedures.*

**APPENDIX:** Example storage guidelines from University of Tasmania for storage of minor quantities in laboratories:

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| **Substance type or DG Class** | **Maximum per 50m2 (Kg or L)** | **Maximum container size** |
| DG Class 3 | 10 | 5 |
| Combustible liquids | 50 | 20 |
| DG Classes 4.1, 4.2, 4.3, 5.1, or 5.2 | 20 but less than 10 of any one class | 10 |
| DG Class 6.1 Packing Group 1  (See note 2) | 10 | 10 |
| DG Class 6.1 Other | 50 | 20 |
| DG Class 8 | 20 | 20 |
| DG Class 9 and aerosols | Liquids 50, solids 100 | Liquids 5, solids 20 |
| Hazardous substances | - | Liquids 5, solids 20 |
| Combined maximum | 200 | - |

DG3: paints, lacquers, varnishes, adhesives and other liquids that give off flammable vapour.

DG4: flammable solids (eg: metal powders), spontaneously combusting substances and substances that emit flammable gases in contact with water.

DG5: oxidising substances and organic peroxides

DG6: toxic and infectious substances (causing injury by inhalation or skin contact)

DG8: corrosives

DG9: miscellaneous dangerous substances (eg: GMOs, lithium batteries, dry ice)

**Storage Tips:**

Ensure the store area is lockable and kept locked

Do not store liquids above solids in case of contamination in the event of a breakage

Limit the size of containers on open shelves to ≤ 5 L/kg, otherwise use a storage cabinet

Always store corrosives on spill trays – kitty litter trays are inexpensive and ideal

Do not store containers on the floor