UON Key Risk Area: KRA 3.2

Confined Space Entry

1. Purpose

The purpose of this procedure is to provide practical guidance for entry into confined spaces and the safe methods of work within confined spaces.

2. Scope

This document applies to all Faculties, Divisions, and organisational units of the University of Newcastle and its controlled entities.

3. Definitions

In the context of this document, the following definitions apply:

- **Confined Space:** An enclosed or partially enclosed space which is not intended or designed primarily for human occupancy, within which there is a risk of one or more of the following:

  (a) An oxygen concentration outside the safe oxygen range;

  (b) A concentration of airborne contaminant that may cause impairment, loss of consciousness or asphyxiation;

  (c) A concentration of flammable airborne contaminant that may cause injury from fire or explosion;

  (d) Engulfment in a stored free-flowing solid or a rising level of liquid that may cause suffocation or drowning.

  Examples include, storage tanks, process vessels, boilers, pressure vessels, silos, tank-like compartments, pipes, sewers, degreaser and sullage pits, ducts.

- **Contaminant:** Any dust, fume, mist, vapour, gas or other substance in liquid or solid form, the presence of which may be harmful to health and safety.

- **Competent Person:** A person who has, through a combination of training, education and experience, acquired knowledge and skills enabling that person to correctly perform a specified task.

- **Leaders/Supervisors:** Any member of the University who is responsible for supervising staff and/or undergraduate or postgraduate students and/or for leading research projects.
- **Workers:** As defined in the NSW Work Health & Safety Act 2011, workers include employees, conjoints, students on work experience, contractors, sub-contractors and their employees. Staff, conjoints, students on work experience, and contractors may be referred to collectively as workers, or separately as staff, conjoints, students, or contractors.

4. Responsibilities

4.1 Infrastructure and Facilities Services (IFS)

- Identify confined spaces on all UON campuses and enter them in a Confined Space Register. See Attachment 1 for an example of a Confined Space Register;
- Ensure confined space entry is conducted in accordance with this procedure;
- Ensure that contractors who are engaged to conduct work in confined spaces have the appropriate procedures and equipment to undertake the work;
- Ensure that the contractor's workers are trained and competent to enter confined spaces, including the Stand-By person;
- Ensure that entry into confined spaces is conducted under a Permit to Work issued by IFS or a nominated representative;
- Provide information to affected locations where confined space entry is to take place to ensure the necessary actions are taken to protect staff and students who work in the area.

4.2 Leaders/Supervisors

- Ensure that risk controls are followed when they are implemented to protect staff and students when confined space entry is to take place in their work location.

4.4 Health and Safety Team

- Provide professional input to confined space entry when required.

5. Procedure

5.1 Identification

IFS is responsible for identifying the confined spaces at all UON campuses by arranging for the following actions:

- Conducting a survey to develop a Confined Space Register which will record the location of the space, the type of space, the risk assessment and the appropriate risk controls;
- Arranging for all confined spaces to be identified with signage that complies with AS 1319-Safety Signs for the Occupational Environment;
- Physically restricting access to confined spaces wherever practical.

5.2 Risk Assessment

When the confined spaces have been identified a risk assessment will be conducted for each space so that the appropriate risk controls can be applied. The assessment will take into account the following hazards that can be associated with entry and work inside confined spaces:

- Toxic or corrosive hazardous substances: e.g. gases, vapours, liquids, mists, dust and fumes. The contaminants may be present as residual material within the confined space, or as a result of materials taken into the confined space (e.g. paint containing toxic or flammable substances), or as a result of work undertaken in the confined space (e.g. welding);
- Fire or explosion;
- Lack of oxygen resulting from consumption as a result of work being undertaken within the confined space (e.g. use of flames), as a result of biological processes (e.g. bacteria in sludge) or displacement by other gases (e.g. purging with an inert gas) or chemical reactions (including oxidation and rusting);
- Engulfment and suffocation: By solids (for example, resin, powders) or liquids that are in or could enter the confined space during occupancy;
- Heat resulting from residual heat stored in the structure of the confined space, the work process undertaken in the confined space and the physical demands of the work or external environmental conditions;
- Electrical exposure from power circuits, capacitors and fittings, and inadequately protected or defective, lights and other electrical equipment;
- Moving equipment: Inside or outside the confined space which presents a risk of injury if inadvertently activated;
- Noise and vibration internal or external to the space;
- Manual handling may be made more difficult as a result of restricted or awkward movement during entry or within the confined space;
- Microbiological exposures may occur where organic materials have been or remain present in the confined space (e.g. waste pits).

5.3 Risk Controls

Risk controls will be selected with reference to the hierarchy of control. Controls include:

- Before any work commences, the confined space will be withdrawn from operation so that it is made clear to all personnel that it is off-line and will remain so until officially returned to operation;
- Clear signs and barriers will be erected in the immediate vicinity of the space to identify the space and exclude people who are not authorised to enter;
- IFS or the nominated representative will ensure all work in confined spaces is conducted under a Permit to Work. The Permit will be completed and signed by the contractor and all the workers involved in the job. See the IFS Permit to Work Procedure;
- Supply lines and equipment within the confined space or associated with the space will be isolated by lock out and tagging in accordance with UON Key Risk Area (KRA) 3.9, Electrical Safety and Isolation;
- Workers must not enter a confined space until it is free from any hazardous atmospheres or until controls have been implemented to ensure that personnel are protected from exposure to harmful contaminants or unsafe oxygen levels by testing the atmosphere, purging with an inert gas if necessary and ventilating with a continuous stream of fresh air if required;
- Personal protective equipment (PPE) may include provision of airline supplied breathing apparatus or self-contained breathing apparatus if the atmosphere is oxygen deficient. Half face masks with appropriate cartridges or other P3 respirators may be required where the work generates dust or fumes;
- Additional risk controls may be required depending on the work that is to be conducted in the confined space e.g. issuing a Hot Work Permit for welding, grinding or other hot work; power tools to be used with Residual Current Device located outside the confined space.

5.4 Emergency Response

Confined space risk assessments will identify potential emergency situations that may occur during work in a confined space. The contractors SWMS or JSA will include details on how an emergency situation will be managed and this will also be included in the Permit to Work. Emergency response will include:

- A trained and competent stand-by person(s) will be provided for every entry into a confined space who will remain in constant communication with the workers within the space and who is able to respond to any emergency situation that may occur;

- The stand-by person may be required to continually monitor the atmosphere in the confined space and has the authority to order the workers in the space to exit immediately if any hazardous situation is identified and to prevent them from entering a confined space where a potentially hazardous atmosphere exists;
- Where there is a risk of falling during the work and also where rescue may be required by vertical or horizontal route, all workers in the confined space will wear safety belts, harnesses and safety lines;
- Fire protection equipment such as fire extinguishers will be provided when there is a risk of fire e.g. during hot work;
- First aid personnel will be made available to provide first response treatment if necessary including cardio-pulmonary resuscitation (CPR). This will include the Stand By person(s).

5.5 Return of the Confined Space to Operation

IFS or the nominated representative will ensure the contractor in charge of the confined space entry has completed the work and the Permit to Work has been satisfactorily signed off before allowing the confined space back to normal operation.

6. References

NSW Work Health and Safety Regulations 2011.

NSW WorkCover Confined Spaces Code of Practice

Australian Standard AS2865:2009 Safe Working in a Confined Space

UON Health and Safety Framework

UON HSP 4.1 H&S Risk Management

IFS Permit to Work Procedure

7. Attachments

1. Example of a Confined Space Register

Document Control Table

Confined Space Entry – KRA 3.2					
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Owner:	Associate Director, Health and Safety				
Contact:	University of Newcastle Health and Safety Team				
Governing Legislation:	NSW Work Health and Safety Act and Regulations 2011,				
Supporting documents & forms of this procedure/guideline:	UON H&S Management System Framework UON HSP 4.1 H&S Risk Management IFS Permit to Work Procedure Australian Standard AS2865:2009 Safe Working in a Confined Space				
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Attachment 1. Confined Space Register – Example

Identification Number & Name	Location (e.g. Campus, building)	Type (e.g. Tank or Pit)	Type of work carried out (or expected to be carried out) in Confined Space	Risk Assessment Completed?	Risk Controls to be Implemented for Entry