3.16 Confined Spaces

Information Sheet: Confined Spaces

Purpose

The following frequently asked questions cover information which will:

- assist areas to identify if a workspace falls within the definition of a confined space;
- assist areas to determine basic entry and training requirements;
- give Schools/Branches guidance and examples on how to manage the hazards (including risk assessment) which are specific to confined space entry; and
- assist Schools/Branches meet the requirements of the Hazard Management Chapter of the HSW Handbook.

If you are required to enter a "Confined Space"

The processes outlined in the WHS Legislation (SA) must be followed (i.e. WHS Act 2012 s19, WHS Regulations 2012 s62-77, Code of Practice for Confined Spaces.)

Q1 What is a confined space?

In accordance with the WHS Regulations (2012, s5 - Definitions), a confined space is an enclosed or partially enclosed space that:

- is not designed or intended primarily to be occupied by a person; and
- is, or is designed or intended to be, at normal atmospheric pressure while any person is in the space; and
- is or is likely to be a risk to health and safety from:
  - an atmosphere that does not have a safe oxygen level, or
  - contaminants, including airborne gases, vapours and dusts, that may cause injury from fire or explosion, or
  - harmful concentrations of any airborne contaminants, or
  - engulfment.

Confined spaces are commonly found in vats, tanks, pits, pipes, ducts, flues, chimneys, silos, containers, pressure vessels, underground sewers, wet or dry wells, shafts, trenches, tunnels or other similar enclosed or partially enclosed structures, when these examples meet the definition of a confined space in the WHS Regulations.

A confined space does not include:

- a mine or the workings of a mine
- places intended for human occupancy and have adequate ventilation, lighting and safe means of entry and exit, such as offices and workshops
- some enclosed or partially enclosed spaces that at particular times have harmful airborne contaminants but are designed for a person to occupy, for example abrasive blasting or spray painting booths

A confined space does not include:

- enclosed or partially enclosed spaces that are designed to be occasionally occupied by a person if the space has a readily and conveniently accessible means of entry and exit via a doorway at ground level, for example:
  - a cool store accessed by a LPG forklift to move stock – although the use of a LPG forklift in a cool store can be hazardous, the door at ground level means that once the alarm is raised, escape and rescue can happen quickly; and
  - a fumigated shipping container with a large ground level opening which will facilitate easy escape and rescue.

Trenches are not considered confined spaces based on the risk of structural collapse alone, but will be confined spaces if they potentially contain concentrations of airborne contaminants that may cause impairment, loss of consciousness or asphyxiation.

Q2 What is considered as "entry" into a confined space?

Entry is considered to have occurred when a person's head or upper body enters the space. A space may become a confined space if work that is to be carried out in the space would generate harmful concentrations of airborne contaminants. (Code of Practice for Confined Spaces 1.4)

Q3 If entry into a confined space is required, then what do I need to do?

As a minimum:

- ensure you have a confined space entry team (i.e. usually a minimum of two people, the worker entering the space and the standby person.)
- identify the hazards and complete a risk assessment (See question 4 and question 5).
- conduct atmospheric testing and monitoring (See question 6).
- ensure you have a documented emergency evacuation plan and all parties are aware of arrangements prior to entry.
- ensure you have appropriate "fail-safe" communication systems.
- ensure you have completed a confined space permit. (See question 7 and Appendix B)
- ensure signs are erected before any work in relation to a confined space starts to prevent entry of persons not involved in the work. (See question 9)
- ensure that air supplied respiratory equipment is available for use by, and is provided to, the worker in an emergency where:
  - the atmosphere in the confined space does not have a safe oxygen level; or
  - the atmosphere in the space has a harmful concentration of an airborne contaminant; or
  - there is a serious risk of the atmosphere in the space becoming affected while the worker is in the space.
- ensure all personnel involved have attended competency based training.

  Training must be provided to workers who:
  - enter or work in confined spaces
  - undertake hazard identification or risk assessment in relation to a confined space
  - implement risk control measures
  - issue entry permits
  - act as a standby person or communicate with workers in a confined space
  - monitor conditions while work is being carried out
  - purchase equipment for confined space work
  - design or lay out a work area that includes a confined space.

  The training provided to relevant workers must cover:
  - the nature of all hazards associated with a confined space
  - the need for, and appropriate use of, risk control measures
  - the selection, use, fit, testing and storage of any personal protective equipment
  - the contents of any relevant confined space entry permit
  - emergency procedures.

Q4 What are the types of hazards associated with working in a confined space?

Confined spaces pose dangers because they usually have poor ventilation which allows hazardous atmospheres to develop quickly, especially if the space is small. The hazards are not always obvious and may change from one entry to the next.

Examples of the specific hazards you may need to consider are provided below.

Hazard	Examples
Restricted entry and/or exit	☐ A small entrance may make it difficult to rescue a worker (e.g. if injured/ill) or to get equipment in/out of the space safely. ☐ If access is via ladder it may be difficult to rescue a worker (e.g. if the opening is high up in a silo).
Harmful airborne contaminants	☐ Build up or release of toxic substances in sewers and pits.
The task performed in the space	☐ Use of paints, adhesives, solvents or cleaning solutions. ☐ Welding or brazing with metals capable of producing toxic fumes. ☐ Exhaust fumes from engines used in the confined space.
Entry of natural contaminants such as groundwater and gases from surrounding land, soil or strata	☐ Acid groundwater acting on limestone with potential to produce dangerous accumulations of carbon dioxide. ☐ Methane released from groundwater and from decay of organic matter.
Release of airborne contaminants	☐ Sludge, slurry or other deposits.
Manufacturing process	☐ Residue left in tanks, vessels etc or remaining on internal surfaces can evaporate into a gas or vapour.
Unsafe oxygen level (less than 19.5% or greater than 23.5%)	☐ Oxygen displaced by gases produced during biological processes. ☐ Displaced during purging of a confined space with an inert gas. ☐ Consumed and therefore depleted inside metal tanks and vessels. ☐ Absorbed or reacts with grains, chemicals or soils in sealed silos. ☐ Oxygen enriched atmospheres if chemical reactions cause the production of oxygen. ☐ Oxygen enriched atmospheres if there is a leak of oxygen from an oxygen tank or fitting while using oxy-acetylene equipment.
Fire or explosion	☐ An ignition source such as a sparking or electrical tool, including from static on a person is introduced into a space containing a flammable atmosphere.
Engulfment	☐ Swallowed up or immersed by sand, liquids, grain, animal feed.
Uncontrolled introduction of substances	☐ Steam, water or other liquids, gases or solids may result in drowning, or being overcome by fumes. ☐ Vehicles and LPG forklifts operating close to the opening of the confined space can cause a build-up of exhaust gases including carbon monoxide in the space.
Biological hazards	☐ Contact with micro-organisms, such as viruses, bacteria or fungi may result in infectious diseases, dermatitis or lung conditions such as hypersensitivity pneumonitis. Sewers, grain silos and manure pits are examples where biological hazards may be present.
Mechanical hazards	☐ Entanglement, crushing, cutting, piercing or shearing of parts of a person's body if exposed to plant such as augers, agitators, blenders, mixers and stirrers.
Electrical hazards	☐ Electrocution, shocks or burns could arise from cables, transformers, capacitors, relays, exposed terminals and wet surfaces where electrical circuits and electrically powered plant are used.
Skin contact with hazardous substances	☐ Surfaces of the confined space may be contaminated with hazardous substances which could cause a burn, irritation or allergic dermatitis or longer-term systemic effects.
Manual tasks	☐ Hazards arising from manual tasks may be exacerbated by physical constraints associated with working in a confined space.
Noise	☐ Noise generated from the use of plant, the work method or process may be amplified due to reflections off hard surfaces. Exposure to hazardous noise may result in hearing loss, tinnitus and other non-auditory health effects. Hazardous noise may also prevent workers hearing warning signals and distract workers from their work.
Personal protective equipment	☐ Hazards may arise from the use of personal protective equipment which restricts movement, grip and mobility.

(continued)

Q4 What are the types of hazards associated with working in a confined space?
(continued)

Hazard	Examples
Radiation	☐ Radioactive sources (ionising and non-ionising), lasers, welding flash, radio frequency and microwaves.
Hazards outside the confined space	☐ Where the confined space has a vertical opening, there is a risk that people could fall in. Persons at risk include those assisting the confined space entry (e.g. standby person) and pedestrians. ☐ Where the confined space entrance is located on footpaths or roads. ☐ Where work is being conducted by a third party outside the space but near the opening (e.g. a person conducting hot work adjacent to a confined space that has a flammable atmosphere.)
Additional physiological and psychological demands	☐ Physical ability of the person to conduct the work. ☐ Possibility of a person being claustrophobic. ☐ Ability to wear the personal protective equipment required to do the work (e.g. respirators).
Heat	☐ Heat stress (e.g. working in a silo which is positioned in full sun on a hot day)
Mobile confined space	☐ Mobile/moveable silos

Q5 How do I apply the principles of risk management to confined spaces?
If an area of work falls within the definition of a "confined space" (i.e. as per Q1) a risk assessment must be completed and the risk assessment is to be in accordance with the Hazard Management chapter of the HSW Handbook (http://www.adelaide.edu.au/hr/hsw/handbook/hazard/) process and Information sheet (which includes the risk assessment tool).

A number of examples of hazards have been provided in Q4. Examples of control measures for associated hazards are provided for your information and consideration in **Appendix A**.

A confined space risk assessment template is provided in **Appendix C.1 – C.4**.

In accordance with legislative requirements the risk assessment process must be conducted by a *competent person* before conducting any tasks associated with the confined space. (WHS Regulations 2012 s66)

The assessment must be conducted in consultation with workers involved in, or working adjacent, to the confined space.

Records must be kept in accordance with the Hazard Management handbook chapter.

Q6 Do I need to conduct atmospheric testing and monitoring?
Yes. This is a routine part of determining appropriate risk controls. The testing is carried out by a *competent person* using a suitable, correctly calibrated gas detector (to be arranged through the School/Branch).

Initial testing should be done from outside the confined space by inserting a sample probe at appropriate selected access holes, nozzles and openings and at different levels, the top, middle and bottom, as some gases are heavier than air.

In accordance with the Code of Practice for Confined Spaces if it is not reasonably practicable to ensure the confined space contains a safe oxygen level, or safe levels of airborne contaminants, then appropriate respiratory protective equipment must be provided. The respiratory protective equipment should be provided and worn in situations where there is no exposure standard for a substance, or where the substance is present in an unknown concentration.

Respiratory protective equipment refers to a range of breathing equipment, including air-supplied and self-contained breathing apparatus. The appropriate respiratory protective equipment should be based on the level and type of contaminants and the work to be done. Whenever there is any doubt about the type of respiratory protective equipment required, a conservative approach should be adopted (for instance, use air-supplied respiratory equipment).

Further details for atmospheric testing and monitoring can be found in WHS Regulations 2012 s71 and Code of Practice for Confined Spaces section 4.

Q7 What is a confined space entry permit?

The entry permit is a checklist to ensure that all elements of a safe system of work are in place before people are allowed to enter the confined space.

It also provides:

- a means of communication between site management, supervisors and those carrying out the work; and
- authorisation for entry to the confined space is safe to proceed.

In accordance with WHS Legislation a worker is not allowed to enter a confined space unless a completed and signed confined space entry permit is issued by a competent person and in writing.

An entry permit is to be issued for each entry. An example of an entry permit is provided in **Appendix B**.

Schools/Branches can opt to use this template, the template in Code of Practice for Confined Spaces or their own provided the template meets the requirements of the legislation.

The written permit authority is to be displayed/available in a prominent place (e.g. adjacent to the confined space).

In accordance with the WHS Regulations (Section 67), the entry permit must include:

- the confined space to which the permit relates;
- the names of persons permitted to enter the space;
- the period of time during which the work in the space will be carried out;
- measures to control risk associated with the proposed work in the space; and
- contain space for an acknowledgement that work in the confined space has been completed and that all persons have left the confined space.

(See Code of Practice for Confined Spaces 5.4)

Q8 What are the requirements for contractors?

Where a contractor is engaged by the University, the person engaging the contractor is required to provide the contractor with information about the hazards associated with that space (if known). The contractor is required to conduct the risk assessment and complete the confined space entry permit in accordance with legislative requirements.

The contractor's entry permit is to be displayed in a prominent place whilst they are conducting the activity.

The contractor's confined space records are to be kept on file by the School/Branch (e.g. Induction records, risk assessments/Job Safety Analysis etc.) relating to the project. See HSW Handbook chapter on Contractor Management for further information.

(Further information for contractors is available from the Campus Services Maintenance Service Centre at each campus, or phone 8313 4008 or the project manager.)

Q9 Do confined spaces need to be identified by signage?

Confined spaces should at all times be secured against unauthorised entry and, where practicable, permanently signposted.

Before any work in relation to a confined space starts, signs must be erected at each entrance to the confined space to prevent and warn other persons, not involved in the work, and against entry. This includes when preparing to work in the space, during work in the space and when packing up on completion of the work.

Signposting alone should not be relied on to prevent unauthorised entry to a potential confined space. Security devices, for example locks and fixed barriers, should be installed.

(See Code of Practice for Confined Spaces 5.9)

The signs should comply with AS 1319.

Q10 Is a standby person required?

Before a worker enters a confined space, a standby person must be within the vicinity of the space, be assigned to continuously monitor the wellbeing and condition of those inside the space, observe the work being carried out (where practicable) and initiate appropriate emergency procedures when necessary.

A system of work is to be provided to enable continuous communication with the worker(s) from outside the confined space.

The standby person should:

- understand the nature of the hazards inside the particular confined space and be able to recognise signs and symptoms that workers in the confined space may experience
- remain outside the confined space and do no other work which may interfere with their primary role of monitoring the workers inside the space
- have all required rescue equipment (for example, safety harnesses, lifting equipment, a lifeline) immediately available
- have the authority to order workers to exit the space if any hazardous situation arises

The standby person should ***never*** enter the space to attempt rescue and should have the authority to order workers to exit the space if any hazardous situation arises.

(See Code of Practice for Confined Spaces 5.7)

Q11 What communication methods are considered appropriate?

Communication will depend on the confined space and may be achieved verbally, by radio, by hand signals or by hard wired communications. Arrangements are to be recorded on the Risk Assessment.

(See Code of Practice for Confined Spaces 5.7)

Q12 What confined spaces are Schools/Branches responsible for?

Infrastructure Branch	Other Schools/Branches
Are responsible for the management of confined spaces associated with the University's Infrastructure. Please contact Campus Services Maintenance Service Centre if there is a requirement to enter an identified confined space or your project manager (as applicable).	Are responsible for any confined space that they have created or acquired. Please contact your School/Branch Health and Safety Officer for further information.

Q13 What records are Schools/Branches required to keep?

In accordance with legislative requirements, the School/Branch responsible for the space (i.e. as identified above) is required to keep, either electronically or in hard copy:

- Risk assessments, safe operating procedures and permits for the spaces and activities in accordance with the Hazard Management handbook chapter
- Training and competency records in accordance with the TNA

Q14 Where can I get more information?

WHS Legislation
http://www.safework.sa.gov.au/show_page.jsp?id=2462

Approved Code of Practice for Confined Spaces

Australian Standards
AS 2865 Confined spaces
AS/NZS 1715 and AS/NZS 1716 Respiratory protective devices

Continued

Q14 Where can I get more information? Continued

For further information, the following Australian Standards are relevant to this activity
AS/NZS 1891 Safety harnesses lines and lifting equipment
AS/NZS 3000, 3100 and AS/NZS 3190, AS/NZS 3191 Electrical and portable electrical equipment
AS/NZS 60079 series where an electrical apparatus is to be used in an explosive gas atmosphere
AS/NZS 61779 when using electrical equipment for the detection and measurement of flammable gases
AS 1319 Safety signs for the occupational environment
AS 4024 Safety of machinery

Australian Standards can be accessed using the following link: http://www.saiglobal.com/online/autologin.asp.
(If you have problems please contact the University Library.)

Training providers for Confined Space
Please refer to the HSW website and HSW Training Plan http://www.adelaide.edu.au/hr/hsw/training/

HSW Team - http://www.adelaide.edu.au/hr/hsw/contact/

School/Branch - Health and Safety Officers - https://www.adelaide.edu.au/hr/hsw/intranet/contact/hsos/
School/Branch – Health and Safety Representatives -
https://www.adelaide.edu.au/hr/hsw/intranet/contact/representatives/

CONFINED SPACE ENTRY - SAMPLE CONTROL MEASURES

To assess the risks and identify the necessary safety precautions, the University's hazard management process should be followed. This process includes the links to the risk assessment template or you can access RMSS.

Examples of hazards associated with confined space entry are provided below for consideration.
Please note that they are informative only. Schools/Branches will need to tailor appropriate control measures based on the hazards, nature and location of the activity.

A risk assessment which includes controls must be completed for each confined space entry together with a written authority i.e. a confined space entry permit (an example is provided in **Appendix B**.)

Examples of hazards	Associated Risk	Examples of control measures. (One or more measures may be appropriate under each heading and should be considered)
Confined space entry (general)	Loss of consciousness, injury or death due to the immediate effects of airborne contaminants Fire, explosion from ignition of flammable contaminants Difficulty rescuing and treating an injured or unconscious person Asphyxiation from atmospheric oxygen deficiency or immersion in stored material (e.g. grain, sand, flour or fertiliser)	Elimination of the need to enter the space ☐ Redesign the space to eliminate the need for entry ☐ Install fixed or temporary cleaning devices (e.g. spray balls using high-pressure hoses) inserted through an access hatch to clean the inside of a tank ☐ Use remote cameras or a mirror attached to a probe for internal inspection of vessels ☐ Use remotely operated rotating flail devices, vibrators or air purgers to clear blockages in silos; or ☐ Use a hook, long-handled clasp or magnet on a string to retrieve an object dropped into space. If elimination is not possible <u>Substitution</u> ☐ Use a non-toxic substance instead of a toxic substance ☐ Apply paints, solvents or surface coatings with brushes rather than aerosols ☐ Replace flammable substances with non-flammable substances <u>Isolation and engineering</u> (i.e. modify the workplace) ☐ Block service lines such as electrical cables, water pipes, air lines ☐ Guard or secure moving machinery parts such as agitators, fans or blenders ☐ Enclose machinery to reduce noise ☐ Thoroughly ventilate the space to ensure a safe oxygen level ☐ Purge contaminants from the space <u>Atmospheric testing</u> ☐ Ongoing testing and monitoring to ensure the atmosphere is maintained at a safe level with the frequency based on the likelihood of a change of conditions.
Confined space entry (general) (continued)		<u>Administration</u> ☐ Risk assessment/Job Safety Analysis (JSA) ☐ Competency based training ☐ Written authority – confined space entry permit ☐ Signs and barriers ☐ Records management <u>Personal Protective Equipment</u> (PPE) ☐ Hard hats, glasses, gloves, chemical suits, boots ☐ Respiratory protective equipment (continued)

CONFINED SPACE ENTRY - SAMPLE CONTROL MEASURES

Other considerations		
Safe entry and exit	Falling from a height	☐ Erect barriers ☐ Provide safety harnesses and lifting devices ☐ Assess competency of person in the use of PPE ☐ Implement entry and exit procedures to indicate when workers are in the space ☐ Erect signs and barricades to prevent entry of persons not involved in the work ☐ Establish a communication system between people inside and outside of the confined space to summon help in an emergency ☐ Ensure you have the appropriate equipment for the task
Hydrogen sulphide gas	Poisoning	☐ Ventilate space ☐ Monitor atmosphere ☐ Assess competency of persons in the use of monitoring equipment ☐ Assess competency of persons to wear respiratory protective devices ☐ Assign standby person ☐ Select communications equipment
Services to the confined space	Physical injury	☐ Tag out services, lock valves etc as applicable as per HSW Handbook (http://www.adelaide.edu.au/hr/hsw/handbook/plant/) ☐ to prevent the introduction of contaminants or conditions through piping, ducts, vents, drains, conveyors, service pipes and fire protection equipment ☐ to prevent the activation or energising of machinery ☐ to prevent the inadvertent use of electrical equipment
Inadequate lighting	Physical injury	☐ Provide additional and appropriate safe lighting ☐ Provide emergency lighting(e.g. torches)
Noise	Hearing impairment	☐ Substitute noisy machinery with quieter machinery ☐ Use sound dampeners or silencers, noise barriers and isolation ☐ Provide hearing protection and train persons in its use ☐ Determine appropriate communication methods
Physiological and psychological	Stress and/or physical exhaustion	☐ Assess and monitor persons (e.g. at agreed intervals) ☐ Rest breaks (e.g. at agreed intervals) ☐ Job rotation
Welding	Fumes	☐ Hot work permit ☐ Provide fume extraction equipment ☐ Provide fire extinguishers
Flammable atmosphere	Explosion, burns, physical injury	☐ Eliminate all ignition sources in the vicinity (e.g. open flames and hot surfaces, spark-producing equipment
Electrical	Electric shock, burns, scalds, physical injury	☐ Provide RCD protection ☐ Ensure all equipment has been tested and tagged
Unguarded plant and machinery	Entanglement, cutting, crushing	☐ Isolate power supply prior to entry and tag out

Appendix B

CONFINED SPACE ENTRY PERMIT (Template)

Please tick/check the boxes to indicate completion. To be displayed, or readily locatable in the work area for the duration of the task.

Date	/ /	**Time**	am/pm	**Period of time work will be carried out in the confined space**	
School/Branch					
Exact location of work (include building, room/space no)					
Description of work					
Risk assessment (RA)/Job safety analysis (JSA)/Safety management plan. (SMP) completed & includes	☐ Control measures for all hazards identified on the risk assessment ☐ Emergency control plan ☐ Communication methods				
Name(s) of worker(s) authorised to enter the space	Worker 1 Name			Worker 2 Name	
Worker(s) entering the space: **e a record of competency on file** **e been provided with information and ruction based on the RA/JSA/SMP**	☐ Yes - Date of training / / ☐ No (If no – arrange training prior to entry) ☐ Yes (RA/JSA/SMP signed)			☐ Yes - Date of training / / ☐ No (If no – arrange training prior to entry) ☐ Yes (RA/JSA/SMP signed)	
Standby person(s) has/have been nominated for the duration of this task and have received information on their role/responsibilities	Name:			Name:	
Isolation checklist (as applicable)	The confined space has been isolated from the following				
	☐ Water			☐ Gas	
	☐ Steam			☐ Mechanical/electrical devices	
	☐ Auto fire extinguishing systems			☐ Hydraulic/electric/gas/power	
	☐ Deposits/wastes			☐ Locks and/or tags are in position	
Atmosphere monitoring	☐ Has been tested and levels safe			Oxygen	%
(Please insert name of gas as applicable	(or respiratory protection provided)			Flammable gases	%
e.g. CO^2, H2S etc)	Other gases	%	%		%
	☐ Other airborne contaminants				
	☐ Worker(s) provided with air breathing apparatus				
	☐ Worker(s) is working without respiratory protection				
Hot work (if applicable)	☐ Is permitted and area clear of all combustibles and fire protection equipment available				
Personal protective equipment provided	☐ Respiratory protection ☐ Harness/lifelines ☐ Eye protection ☐ Hand protection ☐ Protective clothing			☐ Footwear ☐ Hearing protection ☐ Helmet ☐ Communication equipment ☐ Other	
Warning notices/barricades	☐ In place				

AUTHORITY TO ENTER

The control measures and precautions appropriate for the safe entry and execution of the work in the confined space have been implemented and persons required to work in the confined space have been advised of and understand the requirements of this written authority.

Signed (person in direct control)	Date	Time
Name of person in direct control)		
This written authority is valid until	Date	Time

WORKERS LEFT THE SPACE

Worker(1): Signature	Time
Worker(2): Signature	Time

Return the completed confined space entry permit to the person authorising the activity, for record keeping purposes.

CONFINED SPACE ENTRY- HAZARD IDENTIFICATION CHECKLIST (Template) Appendix C.1			
Building/location		**Date**	
Room Description of space			
Name of person authorising entry to the confined space		**Mobile/ Phone**	
		Mobile/ Phone	
Designated safety co-ordinator (if applicable)		**Mobile/ Phone**	
Number of people entering the confined space		**Reminder – a confined space entry permit is required and is to be attached to this assessment on completion of the task.**	

HAZARD IDENTIFICATION (or action identified)

If you are completing this form electronically, double click on the check box and select "checked" under the default value

- ☐ Access (restricted entry and/or exit)
- ☐ Airborne contaminants
- ☐ Activity/task performed in the space (e.g. use of paints, adhesives, solvents)
- ☐ Biological hazards (e.g. contact with micro-organisms, viruses, bacteria or fungi associated with a sewer, grain silo)
- ☐ Communication
- ☐ Crushing, cutting, piercing or shearing of parts of a person's body if exposed to plant such as augers, agitators, blenders, mixers and stirrers
- ☐ Electrical hazards (e.g. potential for electric shock)
- ☐ Emergency management (including evacuation)
- ☐ Engulfment (e.g. swallowed up or immersed by sand, liquids, grain, animal feed)
- ☐ Entanglement in moving parts
- ☐ Entry of natural contaminants such as groundwater and gases from the surrounding land, soil or strata
- ☐ Environment - dirty
- ☐ Environment - wet
- ☐ Environment - other (specify) _____
- ☐ Fall from a height (e.g. ladders)
- ☐ Fire hazard/naked flame, fire explosion
- ☐ Guarding/barriers inadequate
- ☐ Hazardous substances/chemicals
- ☐ Hazards outside the confined space
- ☐ Ignition source such as a sparking or electrical tool, including from static on a person being introduced into a space containing a flammable atmosphere
- ☐ Located near a footpath or road
- ☐ Lighting inadequate
- ☐ Manual handling – lifting, pushing large items of equipment required
- ☐ Manufacturing process
- ☐ Medical emergency – first aid
- ☐ Mobile confined space
- ☐ Noise (e.g. > 85dBA (8 hrs), or 140dB peak)
- ☐ Permits, licenses and registration required, (e.g. asbestos removal)
- ☐ Residue left in tanks, vessels etc or remaining on internal surfaces
- ☐ Restricted movement (e.g. space restricted by size or requirement to wear personal protective equipment)
- ☐ Personal protective equipment – grip is compromised
- ☐ Physiological and psychological demands (e.g. physical ability of the person to conduct the work, possibility of a person being claustrophobic, ability to wear the person protective equipment required to do the work (e.g. respirators)
- ☐ Powered equipment
- ☐ Skin contact with hazardous substances which could cause a burn, irritation or allergic dermatitis)
- ☐ Slip, trip hazards or uneven surfaces
- ☐ Steam, water or other liquids, gases or solids may result in drowning, or being overcome by fumes
- ☐ Temperature extremes (cold)
- ☐ Temperature extremes (hot), heat stress
- ☐ Uncontrolled introduction of substances
- ☐ Unsafe oxygen level (less than 19.5% or greater than 23.5%)
- ☐ Vertical opening adjacent to or within the confined space
- ☐ Workplace/surface is unstable or uneven

☐ **Other** (specify)_____

☐ **Other** (specify)_____

- Please note that this list is not exhaustive, but can be used as the basis for your initial hazard identification.
- If you tick yes to any of the above, then the hazard is to be transferred and addressed on the **Safety Management Plan (Appendix C.2).**
- If you require assistance or further information please contact your School/Branch Health and Safety Officer or HSW Team

CONFINED SPACE

RISK ASSESSMENT TEMPLATE

APPENDIX C.2

Item No.	List the potential hazards/issues identified in Appendix C.1	Risk Assessment Rating Before controls are implemented (Refer to the Risk Assessment Tables - Appendix C.4) **L, M, H, VH**	List control measures to be implemented Dot point the action(s) you will take to manage the hazard and reduce the risk of an injury/illness. Control measures are to be in accordance with the Hierarchy of Control. Refer to Appendix C.4	Who is responsible for the action	Residual Risk Rating After controls in place (High will require sign off by the Head of School/Branch, Very High will require sign off by the VC&P.)

Authorised by: (Print name)		Position		Signature		Date	

CONFINED SPACE

RISK ASSESSMENT TEMPLATE

APPENDIX C.3

UNIVERSITY DELEGATE (i.e. person conducting the induction/briefing)	**I acknowledge that I have received information and understand my responsibilities as per the Safety Management Plan.**		
	Print Name	**Signature**	**Position/role (also includes stand-by person(s)**
_____ Name (Please print) _____ Signature			

RISK ASSESSMENT TABLES

APPENDIX C.4

Likelihood Table: How likely is it to occur?

CATEGORY	DESCRIPTION
Almost Certain	There is an expectation that an event/incident **will occur** (pre/during/post the event)
Likely	There is an expectation that an event/incident **could occur** but not certain to occur
Slight	This expectation lies somewhere in the **midpoint between "could" and "improbable"**
Unlikely	There is an expectation that an event/incident is **doubtful** or **improbable**
Rare	There is **no expectation** that the event/incident will occur

Consequences Table: What is the likely impact on the event and/or participants/university community?

CATEGORY	DESCRIPTION
Negligible	❑ No potential for injury, or consequence would involve very minor first aid treatment (eg bandaid), short term discomfort (eg bruise, headache)
Minor	❑ First aid treatment on site
Moderate	❑ Formal medical treatment required (ie ambulance, hospital outpatient/doctors visit)
Major	❑ Extensive injuries, hospitalisation. Could result in a Notifiable Occurrence (see definitions). ❑ Incident requiring investigation and outside assistance (eg,Fire Service, Police, SafeWork SA)
Severe	❑ Death, permanent incapacity

Risk Score Calculator

Likelihood	Consequences				
	Negligible	**Minor**	**Moderate**	**Major**	**Severe**
Almost certain	**Medium**	**High**	**Very High**	**Very High**	**Very High**
Likely	**Medium**	**Medium**	**High**	**Very High**	**Very High**
Slight	**Low**	**Medium**	**High**	**High**	**Very High**
Unlikely	**Low**	**Low**	**Medium**	**Medium**	**High**
Rare	**Low**	**Low**	**Low**	**Medium**	**Medium**

HIERARCHY OF CONTROL: Risk control/safety measures

The first responsibility is to eliminate the hazard at its source.
Where this is not achievable, consider how the risk can be minimised to the lowest reasonably practical level by applying control mechanisms in the following order of preference.

1. Elimination (permanent solution – remove the hazard entirely)
2. Substitution (replacing the hazard by one that presents a lower risk)
3. Isolation (placement of an enclosure, fence to separate people from the hazard)
4. Engineering (structural change to the environment, equipment)
5. Administration (Procedural eg training, signage, monitoring, safe work procedure)
6. Personal Protective Equipment (to place a barrier between person and hazard) eg gloves, clothing, hats, sunscreen

Please note: A residual risk of "High" requires authorisation from the Head of School/Branch and a residual risk assessment of "Very High" requires authorisation from the Vice-Chancellor and President.

Refer to the HSW Handbook Chapter "Hazard Management" for further information.