



STANDARD – CONFINED SPACE

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1 GENERAL

1.1 Purpose

This document describes the standards and procedures within Hunter Water Corporation to effectively manage work inside and in the immediate vicinity of confined spaces.

1.2 Objectives

The objectives of this standard are to ensure that all personnel including Hunter Water people, contractors and the general public working in or around the immediate vicinity of confined spaces are safe and compliant.

1.3 Scope

This standard applies to all Hunter Water Business Units. This standard covers the requirements associated with Confined Space within Hunter Water.

1.4 Definitions

Fatal Risk Observation (FRO)	A FRO tool is an observation checklist written for each of the Fatal Risk Standards. The FRO process has leaders complete scheduled observations and reinforce the critical elements of the FRS. The process provides positive reinforcement and correct feedback to the observed and build the capability of the leader conducting the observation.
Confined Space	A Confined Space in relation to a place of work means an enclosed or partially enclosed space that is not intended or designed primarily for human occupancy, within which there is a risk of one or more of the following: <ul style="list-style-type: none">• An oxygen concentration outside the safe oxygen range• A concentration of airborne contaminant that may cause impairment, loss of consciousness or asphyxiation• A concentration of flammable airborne contaminant that may cause injury from fire or explosion• Engulfment in a stored free-flowing solid or a rising level of liquid that may cause suffocation or drowning
Energy Source	Energy related hazards including but not limited to: <ul style="list-style-type: none">• Chemical hazards• Electricity – mains, battery, solar, High Voltage• Gasses• Gravity• Heat• Hydraulic• Hydrostatic• Mechanical• Pressure – fluids and gasses• Pneumatics• Potential• Steam• Radiation
Fatal Risk Standard (FRS)	The Fatal Risk Standards are a Water Services Association Australia (WSAA) initiative to collectively identify the industry fatality potential topics and identify the critical controls (i.e. “must do’s, golden rules, critical elements”), with the aim of providing clarity to workers and leaders on the controls that will prevent fatality.

High Risk Work Permit	A permit developed to lower the risk of activities by controlling when and how the high risk activity is undertaken – this may include Confined Space, Work at Height, Electrical Live Test, Electrical High Voltage.
Isolation – Type Soft	An isolation (control) which does not have the security of Yellow or Red locks. Typically soft isolations are tolerated only for low risk sewer and water isolations.
Isolation – Type Hard	An isolation which incorporates yellow and red locks. Typically for electrical and mechanical work and higher risk water/sewer related tasks.
Isolation Plan	An Isolation Plan is the written record of an Isolation Planning process. Depending on the type of Isolation, various types of records can be used. Refer to Sect 4.5 Isolation Planning.
PCBU	A 'person conducting a business or undertaking' (PCBU) is a legal term under WHS laws for individuals, businesses or organisations that are conducting business. A person who performs work for a PCBU is considered a worker.
Controlled Entry Space	<p>A Controlled Entry Space is an enclosed or partly enclosed space where people are to work which, like a Confined Space:</p> <ul style="list-style-type: none"> • Is at atmospheric pressure during occupancy; and • Is not intended or designed primarily as a place of work; and • May BUT DOES NOT OR WILL NOT: • Have restricted means of entry and exit • Have an atmosphere containing potentially harmful levels of contaminant; and oxygen level is less than 19.5% or greater than 23.5%); and • Have an unsafe oxygen level (an unsafe • Cause engulfment if correct isolation procedures are followed. <p>Controlled Entry Spaces should have a Controlled Entry Space sign at the entrance point.</p> <p>Within the Controlled Entry space there may be a confined space. At the point where persons may enter the confined space area, it should have a confined space sign designating the higher risk area which requires a Confined Space Permit.</p>

2 KEY REFERENCED DOCUMENTS

- NSW WHS Act 2011 and WHS Regulation 2017
- Safe Work Australia Code of Practice – Managing Risks of Plant in the Workplace
- Safe Work Australia Code of Practice – Confined Space
- Hunter Water's Take Five Risk Assessment and On Site 3 in 1 Assessment
- Hunter Water's Confined Space Permit

3 RESPONSIBILITIES

3.1 Executive Management Team

The Executive Management Team are responsible for:

- Monitoring data from incidents, audit and observation programs
- Participating in the Fatal Risk Standard (FRS) FRO process by conducting scheduled observations

3.2 WHS Manager

The WHS Manager is responsible for:

- Preparing and approving the WHS system including Confined Space standards to comply with WHS Legislation and Codes of Practice
- Monitoring data from incidents, audit and observation programs
- Participating in the Fatal Risk Standard (FRS) FRO process by conducting scheduled observations

3.3 Group Managers

The Group Managers responsibility is to:

- Ensure the standards are implemented effectively and ensure leaders and workers are appropriately trained and competent to manage confined spaces and to ensure the requirements of the PCBU are effectively met.
- Monitor the results of the FRS FRO observation process.
- Completed FRO observations in accordance with the Hunter Water schedule.
- Nominate supervisors to participate in the FRO program and coach and mentor the supervisors by conducting tiered observations.
- Provide the required confined space equipment.

3.4 Managers/Project Managers

Managers are responsible for:

- Ensure the confined space standards are implemented effectively and ensure leaders and workers are appropriately trained and competent to manage Confined Spaces and to ensure the requirements of the PCBU are effectively met
- Monitor the results of the FRS FRO observation process
- Completed FRO observations in accordance with the Hunter Water schedule
- Nominate supervisors to participate in the FRO program and coach and mentor the supervisors by conducting tiered observations
- Provide the required confined space equipment to workers

3.5 Field Supervisors/Project Controllers

The Field Supervisors are responsible for:

- Supporting their teams to comply with Confined Space related standards
- Monitoring compliance and immediately intervening if variance to the required standards is noticed or reported
- Participating in the Fatal Risk Standard (FRS) FRO process by conducting scheduled observations
- Provide the required confined space equipment to workers

3.6 WHS Advisors

The WHS Advisors are responsible for:

- Monitoring compliance with confined space standards
- Coaching and building capability with WHS standards, audit and observations programs
- Participating in the High Risk Audit program and Fatal Risk Standard (FRS) FRO process by conducting scheduled observations

3.7 Workers

Are responsible for:

- Take reasonable care for their own safety and that of other persons who may be affected by their acts and omissions
- Co-operate in the fulfilment of the obligations placed upon their employer'
- Comply with instructions given for their own safety and health and those of others
- Comply with Hunter Water's rules and standards relating to confined space
- Report to their supervisor or work group leader immediately any situation which they have reason to believe could present a risk and which they cannot safely correct themselves

3.8 WHS Committee

The WHS Committee is responsible for:

- Reviewing the data from the Incident, Audit and FRO programs and contributing to development of improvement initiatives

4 GENERAL REQUIREMENTS

4.1 What is a Confined Space?

A Confined Space in relation to a place of work means an enclosed or partially enclosed space that is not intended or designed primarily for human occupancy, within which there is a risk of one or more of the following:

- An oxygen concentration outside the safe oxygen range
- A concentration of airborne contaminant that may cause impairment, loss of consciousness or asphyxiation
- A concentration of flammable airborne contaminant that may cause injury from fire or explosion
- Engulfment in a stored free-flowing solid or a rising level of liquid that may cause suffocation or drowning

4.2 Examples of Confined Spaces

4.2.1 Examples of Confined Spaces

Some Examples of Confined Spaces are:

- Storage tanks, Reservoirs, process vessels, boilers, pressure vessels, silos and other tank like compartments
- Open-top spaces such as pits and sewage effluent aeration tanks
- Pipes, sewers and sewerage structures, shafts, ducts and similar structures

Hunter Water specific examples of confined spaces are included in the Confined Space register.

5 ASSESSING AND CLASSIFYING CONFINED SPACES

A confined space is determined by the structure and a specific set of circumstances. The same structure may or may not be a confined space depending on the circumstances when the space is entered. Entry to a confined space 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. Temporary control measures such as providing temporary ventilation or achieving a satisfactory pre-entry gas test will not cause a confined space to be declassified. For a confined space to be declassified as a non-confined space, it needs to have undergone sufficient changes in structure and use to eliminate all inherent hazards that define a confined space.

The following flowchart will help to determine whether a space is a 'confined space' for the purposes of the WHS Regulations.

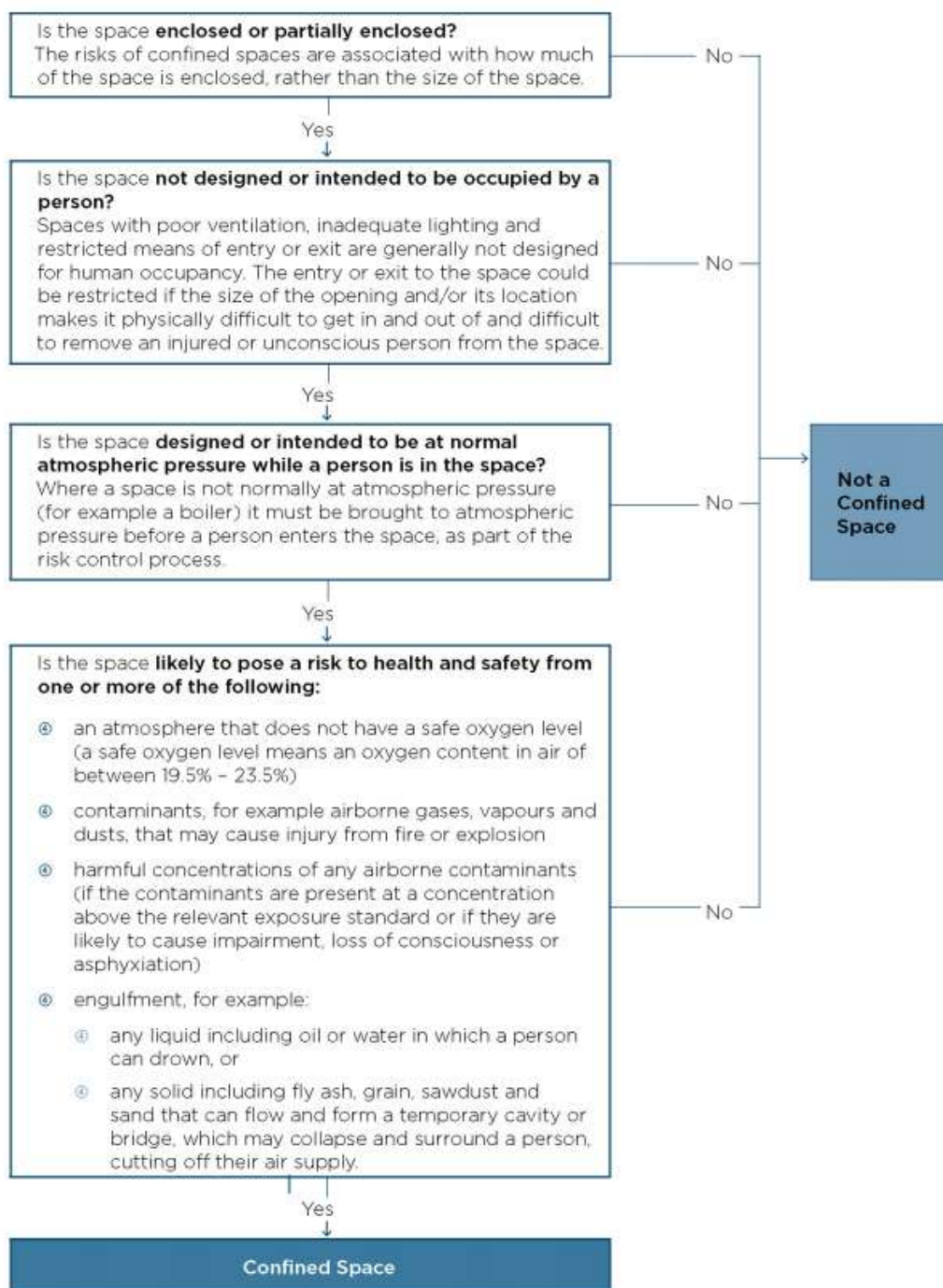
6 ASSESSING AND CLASSIFYING RESTRICTED SPACES

A risk assessment shall be undertaken by an authorised and competent person or persons before an area is classified as a restricted space. The assessment shall be in writing and take into account at least the following:

- The nature of hazards associated with the confined space/restricted space which may include:
 - atmospheric hazards;
 - fire hazards;
 - engulfment hazards; or

- task related hazards
- The work required to be done, including the need to enter the confined space/restricted space
- The range of methods by which the work can be done
- The hazards involved and associated risks involved with the actual method selected and the equipment proposed to be used
- Emergency response procedures
- The competence of the persons to undertake the work.

Risk assessments shall be reviewed and revised whenever there is suspicion or evidence to indicate that there may a change in the risk/s posed to staff.



Reference: Safe Work Australia Code of Practice - Confined Space February 2016

6.1 Non-Designated Confined Spaces

If a planned job or breakdown occurs and there is a potential confined space which has not been previously assessed, the above assessment must be completed. This can be done using the Hunter Water Confined Space Permit which has the assessment included.

6.2 Confined Space Register

Potential confined spaces which have been assessed using the above flowchart and formally classified as a confined space, should be recorded in the Hunter Water Confined Space Register.

The Hunter Water Confined Space register will contain a combination of specific confined spaces i.e. the higher risk, higher complexity facilities and assets such as sewer wells, reservoirs, water storage tanks, treatment plant tanks etc and also groups of common confined space assets such as the hundreds of sewer rising and gravity mains around the Hunter Water network.

The confined space register should be made available to Hunter Water employees and contractors via the Hunter Water Safety Intranet.

6.3 Confined Space Signage

Wherever practicable, confined spaces should have a Danger – Confined Space displayed at the entrance point. It must be noted that it is not practicable to place signage at the majority of sewer and water manholes across the network. It is well understood by Hunter Water personnel and approved contractors that these assets are most likely confined spaces and entry permits are required. The general public are restricted from entry due to design and restricted keys / tools required to open the manhole covers. Buildings and facilities containing confined spaces must be secured to prevent unauthorised access.



7 CONFINED SPACE ENTRY

7.1 Confined Space Entry Process

- All persons entering or working on a confined space, acting as standby persons or supervising confined space work must have received the appropriate confined space entry training and be competent in confined space entry.
- All persons entering the confined space must be wearing a harness.
- Identify all hazards associated with the job, assess the risk and ensure appropriate risk control measures are developed and adopted. Document on the 3 in 1 risk assessment.
- The person in charge of the job shall complete a Confined Space Entry Permit prior to any person entering a confined space
- All workers are prohibited from entering a confined space where a safe atmosphere is unable to be achieved. Atmospheric testing using an approved serviceable gas monitor must be carried out prior to any person entering or conducting hot work on a confined space. The results of the atmospheric testing must be recorded on the Confined Space Entry Permit. The confined space atmosphere should be tested at top, middle and bottom and peak readings recorded on the permit.
- Persons working in a confined space or conducting hot work on a confined space shall ensure that the atmosphere is continuously monitored while any person is in the confined space or conducting hot work on the confined space using an approved serviceable gas monitor
- Ensure appropriate personal protective equipment is worn at all times
- Consideration should be given to how the entry persons will safely access and egress the confined space. This will be reflected on the permit.

- When hot work is to be carried out in or around a confined space a Hot Work Permit must be completed prior to the work commencing – (refer to WHS Standard Hot Work)
- Energy sources and other sources of potential air contamination or engulfment should be isolated with a “hard Isolation” lock out
- Ensure a suitable means of communication is available on site
- At least one standby person must be present directly outside the confined space and in communication with the person(s) in the confined space, whenever the confined space is occupied
- Rescue method must be planned and recorded on the entry permit.
- Office based staff who have occasional need for entry to confined spaces and who have undertaken the necessary training shall arrange such entry with an experienced Field Supervisor who shall ensure that trained and experienced staff provide onsite assistance
- On completion of confined space work all completed Confined Space Entry Permits and Hot Work Permit if applicable must be forwarded to the relevant Supervisor and must be stored for a minimum of two years after the date of entry
- Gas detectors must be within the calibration period and have a periodic bump test completed
- Suitable signage and barricades must be erected to warn and protect other workers and the general public from hazards associated with the confined space work including open pits or voids

8 CONTROLLED ENTRY SPACE

8.1 Controlled Entry Spaces

- There are some buildings and stations which have a confined space within the facility – usually below ground level (i.e. wet / dry wells). Waste Water Pump Stations often contain electrical switch boards and other assets at ground which require periodic access for maintenance and inspections, but are not necessarily within the confined space. The confined space could under certain conditions (flood, fault, high levels of organic matter) influence the atmosphere at the ground level within the facility, therefore protocols need to be developed to restrict unauthorised entry and specify steps to followed to test and ventilate the above ground level section of the facility prior to entry – these environments will be classified as a Controlled Entry space in the confined space register have a Controlled Entry Space sign at the building entry point.
- Controlled Entry Spaces have been designated in places where we believe that there is no risk of an unsafe atmosphere, but to err on the side of caution, a gas monitor is to be used for the duration of the job.
- Within a facility which has a combination of Controlled Entry Space and a Confined Space, the access point at which the space is designated Confined Space should contain a Confined Space sign and ideally have other access designation i.e. chain or safety gate.

8.2 Controlled Entry Space Procedure

- To enter a Controlled Entry Space you must:
 - Gain Authorisation (asset owner / phone Hunter Water Dispatch)
 - Conduct on Site 3 in 1
 - Open the facility doorway
 - Test the atmosphere at the doorway with a confined space gas detector. Smell and do a visual check on the conditions inside the space from the doorway.
 - Switch on ventilation and extraction fans (where fitted) – wait for 10 minutes.
 - Re-test the atmosphere at the doorway with a confined space gas detector.
 - If the conditions are safe, enter that level of the building only, maintaining continuous gas monitoring
 - There is to be no access beyond the confined space designated point without proper confined space procedures.
 - If the Gas detector alarms, all personnel are to retreat from the space and the space will be treated as a regular confined space.
 - Confined Space Permits and Rescue Plans are not required for entry into Controlled Entry Spaces.

- Confined Space Training is not required for entry into a Controlled Entry Space, however the entrant must be competent in the use of the gas monitor and what to do if it alarms, and be aware of the risks associated with confined spaces.
- If any activities alter the atmosphere (i.e. hot work) consider completing a confined space permit.

9 RESCUE AND EMERGENCY PROCESS

The confined entry permit should confirm the space is safe to enter. If there is an incident including unexpected unsafe atmosphere or a health event emergency process will need to be activated.

If an entry persons requires extraction:

- Remove the injured person safely from the confined space (if possible), but under no circumstances is the standby person to enter
- Carry out first aid process call ambulance (telephone 000)
- Enact the rescue method selected on the confined space permit

If Emergency Services are required to rescue an injured person the following process must be followed:

- Telephone 000 ask for Fire and Rescue
- Give the following information:
 - What town
 - Address and GPS if available
 - Nearest cross street or landmark
 - Nature of emergency
 - Number of casualties
 - Contact phone number
- Call Supervisor and report incident. Request assistance from despatch if required. If necessary activate the Man Down GPS transponder.
- Monitor patient's condition. If possible have someone wait to direct emergency services.
- When emergency services arrive, quickly explain the situation and ensure that officers are aware of hazards and assist where possible
- Continue atmospheric monitoring while personnel are inside the confined space. Confined space standards apply during rescue.

Log incident in Integrum.

10 TRAINING

Hunter Water must provide training in Confined Space Entry

This training should include the following topics:

- Enter and Work in Confined Spaces
- Work in Accordance with an Issued Permit
- Gas Test Atmospheres

Specific practical training should be completed on the Hunter Water Gas Detectors and bump test procedures.

Records of all training must be kept while the worker is carrying out the work and for five years after the day the worker stops carrying out the work. These records must also be available for inspection by the regulator.

11 DOCUMENT CONTROL

Document Owner: WHS Manager

Document Approver: Executive Manager Corporate & Legal

Version	Authors Name	Details of change	Approval Date	Approved by	Next Scheduled Review
1	Paul Fray – Snr WHS Advisor	Original release	Sept 2016	Peter Kembrey – Executive Manager Corporate & Legal	Sept 2018
2	Elissa Peattie – WHS Adviser	Review and update. Update Restricted Entry Space details	Dec 2018	Megan Brewster – WHS Manager	Dec 2021