# CS ENERGY PROCEDURE FOR

# CONFINED SPACES
# CS-PTW-HAZ-03

Responsible Officer: Corporate PTW Administrator
Responsible Executive: Chief Executive Officer (CEO)

## DOCUMENT HISTORY

| Key Changes | Prepared By | Checked By | Approved By | Date |
|---|---|---|---|---|
| Rev 1 - First Consultation Draft – across sites | PTW Committee | PTW Committee | GM OPS | 30/01/2004 |
| Rev 2 - Inclusion of site comments and approved for release | PTW Committee | PTW Committee | GMOPS | 15/03/2004 |
| Rev 3 - Inclusion of process change and reviewed by Committee | PTW Committee | PTW Committee | GM OPS | 18/10/2006 |
| Rev 4 - Update to process to include OIC Control Point locks | PTW Committee | PTW Committee | GM OPS | 12/12/2006 |
| Rev 5 - Review of procedure structure with site representatives | PTW Committee | PTW Committee | GM OPS | 12/01/2007 |
| Rev 6 - Form numbers inserted and updated Mick Harts Comments | PTW Committee | PTW Committee | GM OPS | 26/03/2007 |
| Rev 7 - Alistair Brown's review comments included | D Clarke | PTW Committee | A Brown | 10/04/2007 |
| Rev 8 - Included provisions from Confined Space Code of Practice 2011 and NEW CSE formatting | D Clarke | PTW Committee | A Brown | 21/03/2012 |
| Rev 9 - Reviewed and Released as a part of the PTW system changes and harmonisation legislation | D Clarke | PTW Committee | A Brown | 31/10/2012 |
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# CONTENTS

## 1 PURPOSE

The purpose of this procedure is to provide a mandatory process, guidance and information for planning, managing and maintaining safe entry and work within confined spaces. This procedure is designed to provide clear guidelines that all workers are required to follow when working in a confined space. Confined spaces are classified as high-risk areas and require specific planning, risk assessment, management and implementation of controls in order to minimise risks to safe levels before entry for work is authorised. Entry to confined spaces across all CS Energy sites is to occur in conjunction with the CS Energy Permit to Work (PTW) Manual.

**NOTE**: Where possible, the need to enter or work within a confined space is to be avoided.

## 2 SCOPE

This procedure is applicable to all personnel requiring entry and working within a confined space at CS Energy owned and/or operated assets. A person is considered to have entered the confined space if their upper body or head is within the confined space.

This procedure is a component of CS Energy's overarching PTW Management System. For additional information pertaining to the planning, administering and authorisation processes relating to isolations and PTW process, refer to the PTW Manual.

**NOTE:** The identification of, and work carried out in Confined Spaces shall be in accordance with Australian Standard 2865:2009 and the Permit to Work Management System

## 3 WHAT IS A CONFINED SPACE?

A confined space means 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 Regulation.

# 4 CONFINED SPACE IDENTIFICATION

Each CS Energy Site maintains a register of confined Spaces and is available to all personnel for reference in regards to the work they are carrying out.
The Site Manager shall delegate responsibility to maintain the confined space register to the site Safety Team or other groups as appropriate. Any plant or structural modification that occurs in which a new confined space is created it shall be entered into the confined space register. As a minimum, the confined space register shall be reviewed every 2 years.

## 4.1 Confined Space Identification

- A permanent Confined Space Entry sign shall be fixed to all openings for each confined space;
- The sign must be legible, displayed in a prominent position and remain visible when the opening is open;
- The sign must comply with the requirements of AS/NZS 2865 - Safe working in a confined space; and
- All openings shall be uniquely identified.

## 4.2 Identification of Confined Space Nominated Entry Point

- Additional signs are to be erected outside the nominated entry point when the nominated entry point is open or when personnel are working on/inside the confined space.
- The OIC is to apply an OIC Control Point lock and warning – control point tag to every nominated entry point. (The warning – control point tag will be printed from the nominated entry point descriptions nominated by an OIC in the APTW and listed on the WCD or isolation sheet)

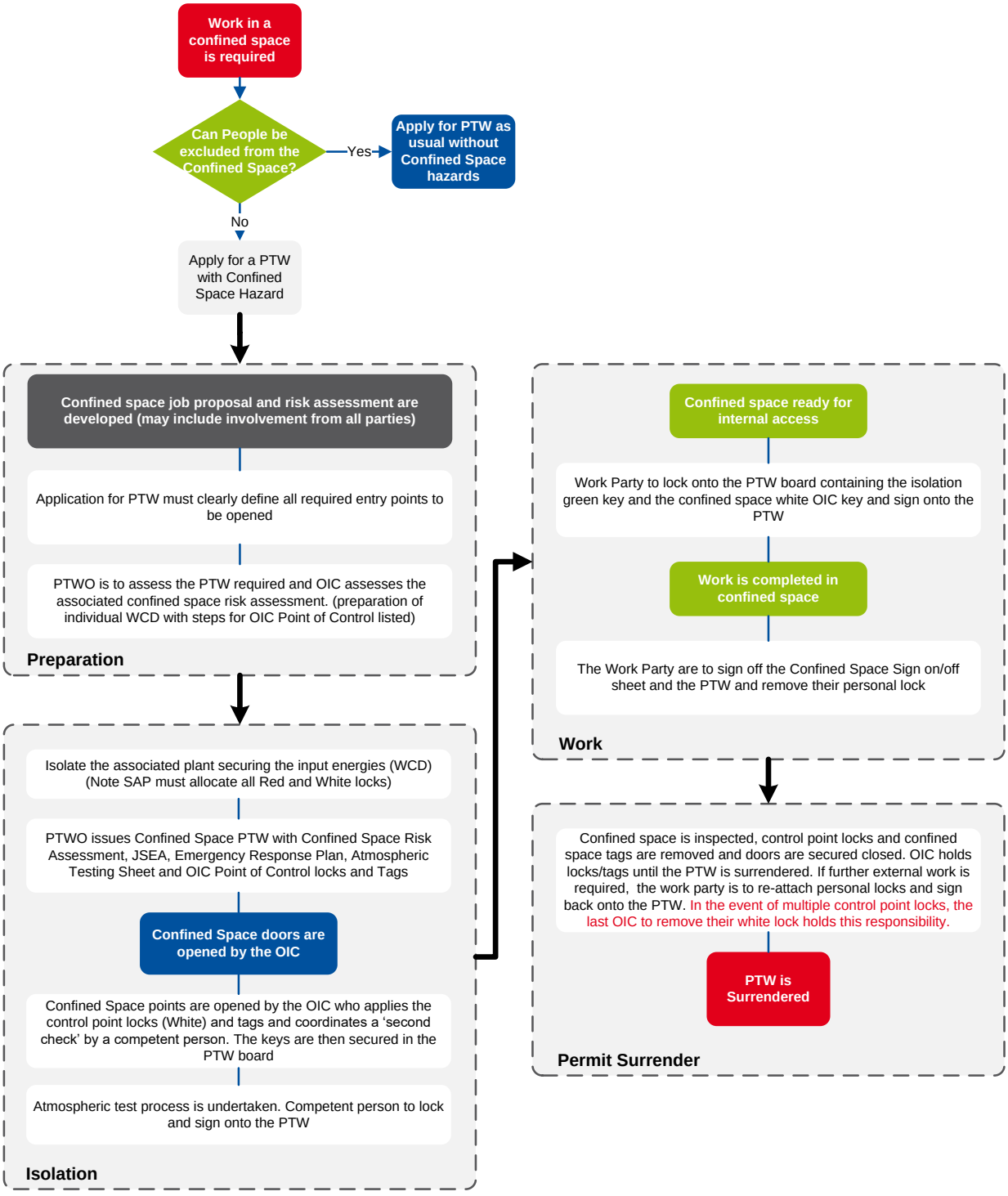
## 4.3 Identification of confined space nominated ventilation points

- Signage shall be installed to identify the confined space and to inform workers not to enter unless they have a confined space entry permit. Sign posting alone should not be relied on to prevent unauthorised entry to a potential space. Security devices such as locks and fixed barriers should be installed. Confined space 'Danger – Confined Space' barricade tape is to be displayed across these barricades so people do not inadvertently enter the space.
- The OIC is to apply an OIC Control Point lock and warning – control point tag to every nominated ventilation point. (The warning – control point tag will be printed from the nominated ventilation point descriptions nominated by an OIC in the APTW and listed on the WCD or *isolation sheet*)

## 4.4 Confined Space Openings

Where openings are not nominated but are opened, fixed barriers should be installed where there is a risk of worker inadvertently entering the space. Confined space 'Danger – Confined Space' barricade tape is to be displayed across these barricades so people do not inadvertently enter the space.

## 5 CONFINED SPACE PROCESS



## 6 CONFINED ISOLATION

If liquids, gases or vapours could enter the confined space, the pipe work should be physically isolated.

Positive isolation is preferred if work inside a confined space is required while the unit is online. There may be occasions where it is not possible due to the plant design to utilise isolation with higher order of control. Under these circumstances it is important that we ensure the isolation is:

1. Risk assessed to ensure the single point isolation is safe while workers are inside the space.
2. Consideration given to plant modification to allow the positive isolation in the future.

## 7 CONFINED SPACE ENTRY

The need to enter a Confined Space will be identified through the completion of a JSEA, which identifies the requirement for a:

- A PTW with the SAP hazard “Confined Space”;
- Confined Space Risk Assessment (refer to S1891);
- Emergency Response Plan (refer to S1889); and
- Atmospheric Testing (refer to S1890).

All confined space entry will require:

- A JSEA and Confined Space Risk Assessment to be completed;
- Unobstructed entry and exit openings large enough to allow for emergency access
- A standby person assigned to continually monitor the well being of those inside the space, observe the work being carried out and to initiate appropriate emergency response procedures when necessary.
- A communication system to enable communications between inside/outside the confined space to summon help in an emergency.
- An Emergency Response Plan developed by the OIC in consultation with the workers involved;
- A rehearsal of the Emergency Response Plan to be conducted prior to entering the confined space.
- Specific retrieval equipment (if required) and a competent user(s) located at the entrance to the confined space.
- Initial atmospheric testing should be done outside the Confined Space by inserting a sample probe at appropriately selected access holes, nozzles and openings (top, middle and bottom should be tested). Ongoing testing requirements should be included in the risk assessment. Monitoring results (S1890) shall be attached to the Entry Permit.
- The Entry Permit has a documented acknowledgement by the OIC that all workers have left the confined space
- Consideration should also be given on how emergency services are going to be notified of the dangers of the confined space when they arrive.
- CS Emergency response teams (ERT) must have an entry permit to enter a confined space in an emergency.

Note: Confined space entry is not intended to prevent a person from inserting their hand or arm while holding a test instrument or probe into the confined space as part of the evaluation prior to entry

## 7.1 Confined Space Openings

Dependant on use at the time an opening may be a nominated ventilation point or a nominated entry point or not used.

The OIC will nominate all the entry points and ventilation points listed on the PTW Application.

After the OIC has been issued with the PTW every nominated entry point and nominated ventilation point, is to be locked open by the OIC using an OIC Control Point lock and warning - control point tag. Warning – control point tags will be printed with a clear description of the entry point to be opened and locked. The key/keys to these locks must be stored in the lockable compartment of the PTW board as soon as the locks are applied. Once the OIC Control Point locks and warning - control point tags are applied the OIC must initial the step on the isolation sheet as complete. No entry is permitted into the confined space until the keys have been secured in the PTW board and risks have been controlled (Refer to Section 7.7).

Confined space nominated entry points and nominated ventilation points shall only be opened:

a) By an OIC:
   - Who holds an appropriate PTW for that piece of plant; and
   - Who has the nominated points listed on their issued isolation sheet; and
   - Who has the appropriate OIC Control Point lock and warning - control point tag; or

b) By a PTWO (Only if it is designed and safe to be opened to meet operational requirements as a part of the isolation process):
   - Who is using the opening for ventilation; or
   - Who will lock the nominated entry point open with a red isolation lock and tag as a part of the PTW; and
   - Will barricade the openings to prevent unauthorised personnel from entering.

As soon as it is practical, the nominated entry point(s) and nominated ventilation point(s) must be secured with an OIC Control Point lock and warning - control point tag (or red isolation lock and danger tag if undertaken by a PTW Officer).

If an opening it is not to be used as a nominated entry point or nominated ventilation point, and requires the opening to assist with work (i.e. lighting, scaffold), it is to be barricaded and signed (Danger Sign) to prevent personnel accidentally entering the space.

Nominated Entry points into confined spaces:

- Must permit rescue of all personnel that enter the confined space;
- Must be kept clear of any obstructions;
- Where necessary be provided with scaffold platform, stairs or ladders to allow safe and convenient entry for work and rescue purposes.

Work party members must enter and exit from the same confined space nominated entry point to ensure a dynamic record is maintained at all times.

#### 7.1.1 Confined Space Nominated Entry Point (without the potential to cause entrapment)

Where a confined space has a nominated entry point that has no potential to cause entrapment (e.g. open pits/drains where entry/exit is not compromised) is required to have:

- An additional sign to be erected outside the confined space nominated entry point.

#### 7.1.2 Confined Space Nominated Entry Point (potential to cause entrapment)

Where a confined space has a nominated entry point that can be closed to cause entrapment (e.g. doors, lids, hatches, manhole covers etc – NOT open pits/drains where entry/exit is not compromised) it is considered as an Control Point and is required to have:

- An additional sign/s to be erected outside the confined space nominated entry point; and
- An OIC Control Point lock and warning - control point tag to secure opened doors. (The warning - control point tag will be printed from the nominated entry point descriptions by an OIC in the APTW and listed on the WCD or *isolation sheet*)

### 7.2 Multiple Workgroups Operating Simultaneously in the Same Confined Space

- A confined space coordinator is used when there are two or more PTW work parties conducting work inside a single confined space and have the potential to impact one another.
- A single confined space coordinator will be appointed to coordinate all work between work parties being conducted in that confined space.
- The confined space coordinator:
    - Will be appointed during Overhauls and Unit outages or under other circumstances as deemed appropriate.
    - Will be nominated by the Overhaul or Outage Manager (or Maintenance Superintendent where there is no outage or overhaul).
    - Will coordinate nominated confined space/s. The nominated confined spaces will be at the discretion of the Overhaul or Outage Manager. (e.g. during a major overhaul, the area may cover the entire boiler, back end, air heaters, flue paths on the precipitators that share the same atmosphere)
    - Will coordinate effective communication and activities affecting the atmosphere between all OIC's work in the confined spaces.
    - Will have overriding authority to determine if a planned work activity should or shouldn't commence or continue.
    - Will ensure the confined space is cleaned to its original state.
    - Manage the confined space box-up and returning the tags and locks.
- Each individual workgroup will still be assigned an OIC for the work being conducted in the confined space who is responsible for ensure the safety of the workgroup in the confined space. This OIC will be required to liaise accordingly with the confined space coordinator.
- A coordination meeting is required between all OIC's regarding multiple workgroups carrying out different tasks in the one confined space. The meeting may be held at:

- the start of each shift, or
- the transfer of OIC, or
- where the conditions change within the confined space that introduces the possibility of new hazards, or
- where a new permit is issued
- minutes of the meeting are to be recorded.

- Where there are multiple tasks required to be carried out in the same confined space there may be one encompassing PTW permit issued that will specify each task undertaken in the space. Individual JSEA's shall be completed for each task inside that space and the necessary controls implemented.

## 7.3 Confined Space Isolations during Overhaul Conditions

During overhaul conditions, where a number of confined space work areas are required to be accessed by numerous work parties simultaneously, it can be difficult to issue and manage PTW's with the same confined space on multiple PTW's.

It is permissible to manage these isolations by linking the confined space ventilation points and confined space access points to a Work Clearance Document (WCD) acting as a multiple. The isolating officer is to lock the white POC locks to the isolation and the white keys are to be maintained on the corresponding isolation sheet rack (grid reference) in the PTW office.

When multiple work parties are working simultaneously in the same confined space – a confined space coordinator is to be appointed as per Section 7.2.

## 7.4 Confined space within a confined space

- The PTW will be issued allowing entry to the confined space. Every nominated entry point and nominated ventilation point to be opened must be identified on the isolation sheet and be allocated its own OIC Control Point lock and warning - control point tag. A confined space within a confined space shall be treated as an independent confined space and controls must be implemented. The JSEA should reflect the hazards identified for the confined space and the additional confined space within the confined space. (e.g. JSEA will incorporate additional stand-by person or atmospheric testing requirements)

## 7.5 Standby Persons

- It is a requirement at CS Energy that all confined space entries have a standby person for that entry;
- It is permissible, where plant configuration permits (e.g. two entry points side by side, etc.), a confined space standby person can fulfil the role for multiple confined space entry points;

**Note:**
Work Health and Safety Regulation 2011 Regulation 69 states;
A person conducting a business or undertaking must ensure that a worker does not enter a confined space to carry out work unless the person provides a system of work that includes:-

(a) Continuous communication with the worker from outside the space; and

(b) Monitoring of conditions within the space by a standby person who is in the vicinity of the space and, if practicable, observing the work being carried out.

## 7.6 Equipment Used in Confined Spaces

- All portable electrical equipment shall be connected to, individually or collectively to a safety switch Residual Current Device (RCD), with the device located outside the confined space.
- Ignition sources must not be introduced into a confined space (from outside the space) if there is a possibility of the ignition source causing a fire or explosion in the space (flammable atmosphere).
- No cylinder of compressed or liquefied gas, other than those used for self-contained breathing apparatus, shall be taken into the confined space. The gas supply shall be turned off at the cylinder valve when not in use. The gas cylinders shall be secured. Hoses supplying gas operated equipment, shall be inspected and tested prior to installation, and guarded to avoid accidental damage;
- All temporary lighting (including emergency lighting) shall be protected against damage.

## 7.7 Risk Assessing Confined Spaces

Prior to entry into a confined space a competent person must complete a JSEA, Confined Space Risk Assessment and Emergency Response Plan specific to the work required to be undertaken.

The JSEA shall take into account the following:

- The work required to be done, including the need to enter the confined 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 equipment proposed to be used;
- The competence of the persons to undertake the work;
- Impacts on or from works in adjacent areas;
- The hierarchy of control methods; and
- The first aid and emergency response requirements; and
- The requirements for entry/exit and ventilation of the confined space.

The Confined Space Risk Assessment shall take into account the following:

- The nature of the hazards of that confined space and impacts from works in adjacent areas;
- The hazards involved and associated risks involved with the actual method selected and equipment proposed to be used;
- Atmospheric hazards and additional required atmospheric testing; and
- Stand-by and emergency response requirements.

The Emergency Response Plan shall take into the account the following:

- Emergency response requirements;
- Emergency equipment requirements;

- Trained Rescue Personnel required;
- Rescue plan and rehearsal;
- First aid procedures; and
- Assessed by the site Emergency Response Team.

The JSEA, Confined Space Risk Assessment and Emergency Response Plan shall be reviewed:

- Each time a confined space is made available for entry (prior to entry occurring);
- When additional or new hazards have been introduced into the confined space;
- Any time the conditions change inside the confined space;
- Whenever there is evidence that the initial assessment in no longer valid.
- For impacts from works in adjacent areas.

## 7.8 Confined Space Isolations

All isolations must be completed in accordance to the CS Energy PTW Manual.

You must ensure that all potentially hazardous services are isolated prior to any person entering the confined space. If gas, fumes or vapours could enter the confined space the pipe work needs to be physically isolated. The minimum requirement for isolation shall be one of the following:

- Removing a spool piece or expansion joint, blanking and capping the open end and tagging to indicate purpose.
- Inserting a blank/spade between the flanges as close as possible to the confined space and tagging to indicate purpose.
- Closing, locking and tagging at least 2 valves in the piping leading to the confined space. A drain or vent valve between the 2 isolation valves should be locked open to atmosphere (double block and bleed).

In all cases, you should physically confirm that the isolation is effective.

Isolation shall be undertaken to prevent;

- Induction of contaminants through piping, ducts, vents, drains, conveyors, service pipes and fire protection equipment.
- The activation or energising of machinery in the confined space
- The activation of plant/services outside the confined space that could adversely affect the space
- The release of any stored or potential energy in the plant and
- The inadvertent use of electrical equipment.

The isolation shall not be de-isolated until all work is complete and all workers have left the confined space.

## 7.9 Air Quality Testing

Air quality testing shall be conducted prior to any entry or work inside a confined space. Initial atmospheric testing should be done outside the Confined Space by inserting a sample probe at appropriately selected access holes, nozzles and openings (top, middle and bottom should be tested). Ongoing testing requirements should be included in the risk assessment. Monitoring results (S1890) shall be attached to the Entry Permit.

Testing must be undertaken in a manner that encompasses all possible atmospheric related hazards as specified on the Confined Space Risk Assessment of that particular confined space.

The Air Quality Tester shall be competent, authorised and have locked and signed onto the Permit that allows entry to the confined space to conduct an air quality test. This task shall be included on the relevant Confined Space Risk Assessment assessing all the associated risks.

Prior to the entry of the work party, the atmosphere of a confined space must meet the following minimum requirements:

- The atmosphere testing must provide confirmation that the concentration of any flammable gas, vapour or mist in the atmosphere of the space is less than 5% of its LEL (lower explosive level).
- If above or equal to 5% of its LEL, access shall not be immediately granted.
- A second atmosphere test shall be performed.
- If the reading is still above or equal to 5% of its LEL, a JSEA regarding access shall be undertaken considering the following guidelines:
    - If it is not reasonably practicable to limit the atmospheric concentration of a flammable gas, vapour or mist in a confined space to less than 5% of its LEL and the atmospheric concentration of the flammable gas, vapour or mist in the space is equal to or greater than 5% but less than 10% of its LEL workers shall evacuate the space unless a suitably calibrated, continuous-monitoring flammable gas detector is used in the space;
    - If the atmospheric concentration of the flammable gas, vapour or mist in the space is equal to or greater than 10% of its LEL—all workers must evacuate the space.
- The concentration of any other atmospheric contaminant (for example, ammonia, carbon monoxide, chlorine, oil, etc.) is no greater than the Exposure Standard expressed as a Time Weighted Average (TWA); and
- There is no potential for the level of atmospheric contaminant to fall outside the above ranges.
- All results from air quality tests shall be recorded timely and accurately on the atmospheric testing sheet documentation.
- The Confined Risk Assessment must nominate the frequency or intervals for air quality testing. Where air quality conditions are modified or changed in a confined space (e.g. release of airborne contaminants) a risk assessment must be completed to identify the need for retesting or continuous monitoring of the air quality.

**A person shall not work in a confined space where the air quality tests indicate an environment that has an unsafe or contaminated atmosphere.**

## 7.10 Purge and Cleaning

Purging (ventilation) and cleaning (e.g. hose-down) of a confined space prior to entry is an effective control measure.

Purging should be completed using a ventilation device consistent with the Confined Space Risk Assessment requirements. At no stage is pure Oxygen to be using for the purging process as it may lead to an Oxygen enriched environment, which holds the potential to develop into an explosive environment.

Cleaning must be performed from outside of the confined space where possible. If cleaning is required to be performed from within a confined space control will need to be implemented to minimise risk. Thorough cleaning must also be performed at the completion of every job inside a confined space where all foreign materials and equipment are removed from that confined space.

## 7.11 Confined Space Rescue and Retrieval

All personnel who may be involved in any way with the rescue from a confined space, should be made aware that well planned and well rehearsed rescue procedures are essential and are to be followed at all times.

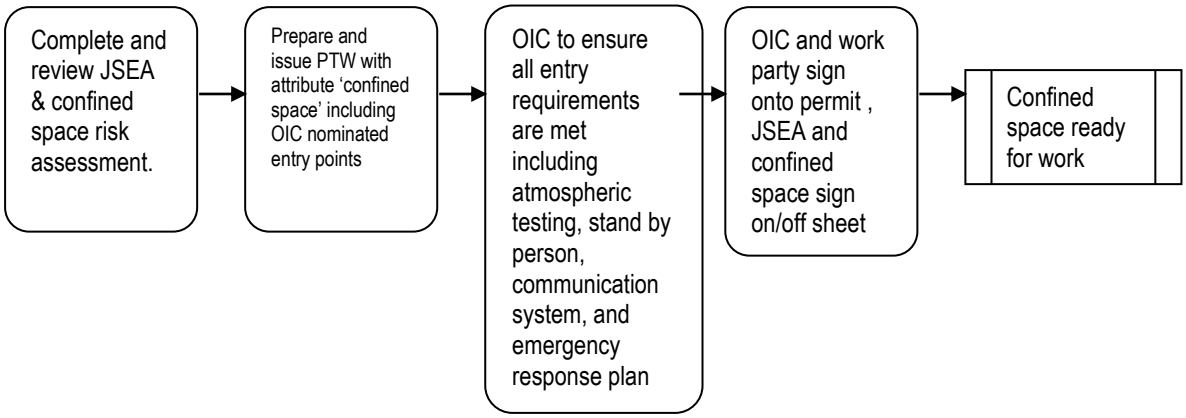
It is mandatory for the personnel in control of the confined space to develop an **Emergency Response Plan** (S1889 – Confined Space Emergency Response Plan) for each PTW – confined space entry. This Emergency Response Plan can be generic or specific to a high-risk activity/work. The Emergency Response plan should be assessed by the site Emergency Response Team

This Emergency Response Plan is required to be discussed prior to entry of the confined space and rehearsed. Specific confined space Emergency Response Plans will be managed at each CS Energy site as per their sites processes and resources. This will be consistent with CS Energy Emergency Management Procedures and their current organisational arrangements.

CS Energy Emergency/First Response Teams (ERT) must have an entry permit to enter a confined space in an emergency.

The stand-by person/s is at NO time allowed to enter a confined space. Their responsibility is to initiate the confined space emergency response plan.

# 8 CONTRACTORS / PRIOR TO ENTRY




## 8.1 PTWO

PTWO Responsibilities include:

- Confirming the Confined Space Risk Assessment and JSEA have been reviewed by a competent person;
- Confirming the “Hazards” section of the Application for PTW has been completed;
- Confirming all confined space nominated openings have been listed on the APTW;
- Opening confined space openings for ventilation and place danger tape across openings;
- Confirming a Confined Space Entry Sign On/Off Sheet and Atmospheric Testing Form are included as part of the documentation;
- Isolating the plant in accordance with the PTW Manual giving special consideration to:
    - Draining;
    - Purging; and
    - Ventilation.
- Confirming that all confined space nominated entry points and nominated ventilation points have been listed on the isolation sheet and associated warning - control point tags and OIC Control Point locks are provided to the OIC.

## 8.2 OIC

Responsibilities include:

- Completing the Application for PTW, JSEA, Confined Space Risk Assessment, Emergency Response Plan and, then arranging for review by a competent person;
- Arranging for the provision for a standby person/s where required by in the Confined Space Risk Assessment;
- Confirming workers are trained and competent to enter a Confined Space (refer to Section 7.10);
- Liaising as required with team leaders, confined spaced coordinator, workers, specialists (Risk, Health & Safety, Environment);
- Warning - control point tags are attached to all nominated entry points and nominated ventilation points to the confined space;
- Ensuring all nominated entry points and nominated ventilation points are open and locked using the OIC Control Point locks and warning - control point tags. The key/s to these locks must be stored in the lockable compartment in the PTW board as soon as the locks are applied. Once the OIC Control Point locks and tags are applied the OIC must initial the step on the isolation sheet as complete. No entry is permitted to the confined space until the keys are secured in the PTW board;
- During overhaul periods (when Section 5.3 is applied), the OIC is to be issued the PTW (with confined space WCD and Hazard) without OIC Control Point Locks.
- Coordinating any preparatory requirements for personnel retrieval (e.g. Trained Rescue Personnel, Standby Personnel);
- Ensuring all entrances must not be obstructed by fittings or other equipment that could impede a rescue;
- Coordinating any required Air Quality Testing for work within the confined space;
- Erecting barricade tape and/or signs to control entry;

- Ensuring that all work party members and others who require entry to the confined space sign onto JSEA's, PTW Sign On/Off Sheet and Confined Space Entry Sign On/Off sheet;
- Involving personnel entering the confined space in discussion and rehearsal of first aid and Emergency Response Plan;
- Ensuring Residual Current Devices (RCD's) are provided for electrical equipment used in the confined space; and
- Ensuring that the requirements of the PTW for confined space entry are fulfilled;
- Sign off acknowledgement on completion of work that all persons have left the confined space.

### 8.3 Work Party

Responsibilities include:

- Advising the OIC that they require entry to the confined space;
- Advising the OIC of the activities, plant, tools, material, chemicals and processes that will undertaken in the confined space;
- Notifying the OIC of any impairment that may make them unable to safely perform a task in the confined space;
- Ensuring that competency and training currency is maintained for confined space entry;
- Ensuring that all required PPE is correctly utilised;
- Checking that the confined space atmospheric testing has been conducted;
- Ensuring that they review and are signed on the JSEA, PTW Sign On/Off Sheet and Confined Space Entry Sign On/Off sheet; and
- Affixing personal locks to PTW board.
- Notifying the Standby Person if there is a issue inside the space
- Exiting the space if atmospheric monitors indicate a unsafe environment (go into alarm), in the event of an emergency or if instructed by the Standby Person.

### 8.4 Standby Person

Responsibilities include:

- Identifying and testing method of continuous communication with OIC and persons working in the confined space;
- Ensuring any emergency recovery equipment, monitoring equipment and Emergency Response Plan are in place prior to work commencing;
- Ensuring they remain outside the confined space at all times; and
- Ensuring documentation for entry in to the confined space is located in proximity to the nominated entry point of the confined space.

### 8.5 Competent Air Quality Testing Personnel

Responsibilities include:

- Undertaking Air Quality Testing:
  - with calibrated equipment;
  - challenging the test equipment prior to use;
  - in accordance with the hazards identified in the JSEA & Confined Space Risk Assessment.
  - in a manner that ensures the entire Confined Space is assessed; and
  - utilising appropriate personal protective equipment.

- Recording Air Quality Test Results on the Atmospheric testing Form.

### 8.6 Confined Space Coordinator

Responsibilities include:

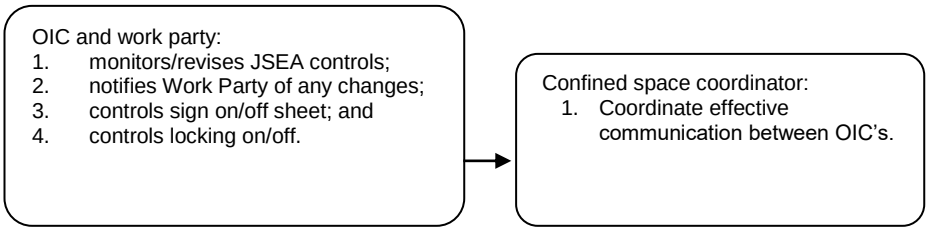
- Coordinate effective communication and activities affecting the atmosphere between all OIC's work in the confined spaces.
- Will have overriding authority to determine if a planned work activity should or shouldn't commence or continue.
- Instigating a coordination meeting as required between all OIC's regarding multiple workgroups carrying out different tasks in the one confined space. The minuted meeting may be held at:
  - the start of each shift, or
  - the transfer of OIC, or
  - where the conditions change within the confined space that introduces the possibility of new hazards, or
  - where a new permit is issued

### 8.7 Competent Person (Confined space trained and plant knowledge)

Responsibilities include:

- Reviewing the JSEA, Confined Space Risk Assessment and Emergency Response Plan; and
- Endorsing the Application for PTW, and acknowledging an acceptable review.

## 9 WORKING IN A CONFINED SPACE




### 9.1 PTWO

Responsibilities include:

- Ensuring the plant has been isolated for the plant/scope of work requested and that the isolation has been verified as effective in containing the energy source.
- Advising the OIC of any change in conditions associated with plant (including co-joined boilers – refer site specific procedure).
- Receiving approval from the OIC prior to changing any conditions associated with the confined space

## 9.2 OIC

Responsibilities include:

- Managing entry to the confined space.
- Monitoring and reviewing the JSEA, particularly if new hazards are identified or introduced into the work area and instruct the work party of any changes (this may involve the ceasing of work activities and exiting of the Confined Space);
- Maintaining the integrity of the work party sign on/off and lock on/off process;
- Ensuring any individual (who is not apart of the work party) who is required to enter the confined space are briefed and signed onto the JSEA, PTW Sign On/Off Sheet and Confined Space Entry Sign On/Off sheet;
- Maintaining the integrity of the PTW Board and documentation;
- Coordinating the safety controls as defined within the JSEA (e.g. air monitoring may identify the need to cease work and exit the Confined Space);
- Cancelling entry permission when the work is complete or when controls detailed in the risk assessment are not being met;
- To identify if more than one stand-by persons required;
- Using intrinsically safe lighting where indicated in the JSEA;
- General lighting shall be totally encapsulated in shatterproof housing;
- Ensuring suitable equipment is provided including personal protective equipment, equipment for emergencies including rescue equipment, first aid, fire suppression;
- Ensuring all electrical equipment is shutdown when the confined space is not attended for extended periods;
- Ensuring compressed gas cylinders, welding generators and electrical distribution boards are not taken inside into the confined space;
- Providing adequate ventilation to extract welding fumes and prevent build up of atmospheric contaminants;
- Ensure all liquid and solid residues that may contribute to the release of flammable vapours or gases raising the concentration above the 5% LEL are removed; and
- Liaise accordingly with the confined space coordinator when required.
- Ensure all persons have left the space when work is completed.

## 9.3 Confined Space Coordinator

Responsibilities include:

- Coordinate effective communication and activities affecting the atmosphere between all OIC's work in the confined spaces.
- Will have overriding authority to determine if a planned work activity should or shouldn't commence or continue.
- Instigating a coordination meeting as required between all OIC's regarding multiple workgroups carrying out different tasks in the one confined space. The minuted meeting may be held at:
    - the start of each shift, or
    - the transfer of OIC, or
    - where the conditions change within the confined space that introduces the possibility of new hazards, or
    - where a new permit is issued

## 9.4 Work Party

Responsibilities include:

- Ensuring a stand-by person is present unless a risk assessment determines otherwise;
- Informing the OIC of new hazards identified or introduced into the work area;
- Following OIC instructions relating to specific work activity requirements and the timing of particular tasks;
- Following the controls identified in the JSEA;
- Following the appropriate work procedures;
- Signing the Confined Space Entry Sign On/Off Sheet each time they enter or exit the Confined Space;
- Exiting the confined space as quickly as possible whenever an order to evacuate has been given or an evacuation alarm sounds;
- Ensuring no cylinder of compressed or liquefied gas, other than those used for self-contained breathing apparatus, should be taken into the confined space;
- Ensuring compressed gas cylinders are turned off when not in use;
- Ensuring, where there is a potential for combustibles, portable electrical equipment should be intrinsically safe;
- Ensuring portable electrical equipment is protected by a safety switch device (RCD), with the device being located outside the confined space;
- Ensuring that personal protective equipment and emergency response equipment are fitted and selected to suit;
- Testing Residual Current Devices (RCD's) associated with electrical equipment used inside the confined space; and
- Ensuring all welding electrodes are removed from holders, when not in use, and placed so that accidental arcing and contact cannot occur.

## 9.5 Competent air quality testing personnel

Responsibilities include:

- Testing personnel shall not enter a confined space without a PTW;
- Undertaking Air Quality Testing in accordance with the hazards and interval between tests that are identified in the JSEA, Confined Space Risk Assessment & Atmospheric Testing Form;
- Recording Air Quality Test Results on the atmospheric test sheet;
- Ensuring calibration is maintained on the air quality test instruments;
- Ensuring challenge testing is conducted prior to performing tests;
- Ensuring air quality test instruments are serviceable;
- Testing personnel shall complete a JSEA and identify control measures to conduct atmospheric testing inside a confined space.

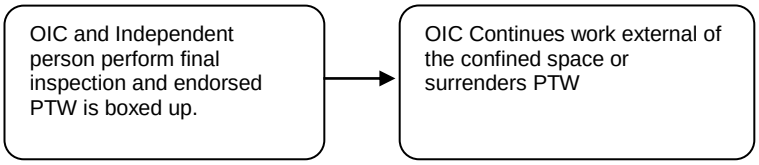
## 9.6 Stand-by Person

Responsibilities include (when nominated in the Confined Space Risk Assessment):

- Remaining outside or in close proximity to the confined space at all times;
- Ceasing work and evacuate people within the confined space if situation arises;
- Initiating the Emergency Response Plan (raise the alarm) in a rapid and timely manner;
- Use emergency recovery equipment as defined in the Confined Space Risk Assessment and Emergency Response Plan if competent as a trained rescue person (e.g. attempting non-entry rescue if proper equipment is in place and the rescue attempt will not present further hazards to the casualty);
- Operating and Monitoring equipment for the safety of the personnel in the confined space;
- Monitoring a device used to provide ongoing ventilation within the space;
- Maintaining visual contact with personnel within the Confined Space where possible;
- Maintaining a means of communication with personnel within the Confined Space such that ongoing checks can be made with the status of those inside and such that information can be relayed from those within the space;
- Not performing any other task other than that of required to be a stand-by person;
- Monitor the external conditions and activities that may impact on the health and safety associated with personnel working within the confined space;
- Sign on and identify themselves on the Confined Space Entry Sign On/Off Sheet;
- Control entry and egress into the confined space (ensure workers sign on and sign off accordingly);
- Informing the OIC of new hazards identified or introduced into the work area; and
- Monitor the well being of the persons inside on the confined space and to alert them of the need to evacuate the space when conditions warrant.

- In the event of an emergency remain at the entry of the space and on arrival of the Emergency Response Team communicate the sequence of events, persons in the space and any other relevant information as requested. Do not enter the Confined Space.

## 10 WORK COMPLETED INSIDE THE CONFINED SPACE




The OIC is to have all members of the work party sign off the permit and ensure they remove their personal locks. The OIC then notifies the independent person to perform a joint confined space “box up”.

If OIC Control Point locks are lost or damaged they are to be managed in accordance with the Section 11 of the PTW Manual.

### 10.1 Independent person assisting OIC with confined space box up

The independent person assisting the OIC with the box up must not be a member of the work party who has been in the confined space for that work.

Responsibilities include:

- When required actioning (with the OIC) the requested confined space box up by:
  - Performing the final Confined Space check to ensure all personnel are clear and equipment has been removed (sign off on Entry Permit)
  - Remaining at the confined space opening(s) until the OIC Control Point Lock(s) and warning - control point tag(s) are removed and the confined space opening access cover is securely closed **(this is only applicable to the white OIC Control Point locks)**; and
  - After performing the checks, counter initialling the relevant step(s) on the isolation sheet.

### 10.2 OIC

Responsibilities include:

- Ensuring the plant is in a condition to allow the next stage to progress;
- Checking that all persons are accounted for and that nobody remains in the confined space.
- Informing the Work Party of the change in scope;
- Instructing the Work Party to remove their purple or blue Personal Locks and sign off the Confined Space Sign On/Sign off sheet;
- Notifying the PTWO of a requirement to “box up” the confined space;
- Removing the OIC control point lock and key from the PTW Board and releasing the OIC Control Point Isolation lock and key;
- Removing the OIC Control Point Isolation lock/s and warning - control point tag/s;
- Jointly [with an independent person (not a member of the work party)] – (Refer to PTWO above)

- Performing the final Confined Space check to ensure all personnel are clear and equipment has been removed;
- Remaining at the confined space opening(s) until the OIC Control Point Lock(s) and warning - control point tag(s) are removed and the confined space opening access cover is securely closed; and
- Signing the confined space box up section on the PTW sheet.

- Advising the PTWO if the PTW can be suspended or is still required after the Confined Spaces have been “Boxed Up”;
- Housekeeping and security of the locks and tags at the OIC Control Point on the plant (i.e. storing them, ensuring the locks are accounted for and ensuring the locks are not used for any other purposes); and
- Returning the OIC Control Point lock/s and warning - control point tag/s to the PTW office;

### 10.3 Work Party

Responsibilities include:

- Removing their purple or blue Personal Lock; and
- Sign off the PTW Sign On/Off Sheet and Confined Space Entry Sign On/Off sheet.

### 10.4 Confined Space Coordinator (when required)

- Will ensure the confined space is cleaned to its original state;
- Manage the confined space box-up and returning the tags and locks; and
- Conduct a final inspection in conjunction with OIC and sign off the final ‘box up’ of the confined space.

## 11 CONTRACTOR MANAGEMENT

Where contractors that may be unfamiliar with CS Energy procedures are procured to undertake Confined Space activities on site, relevant site specific information is to be communicated during pre-contract consultation, the site induction process and pre-work Supervisor/Site Contact/OIC communication. The following is to be communicated:

- Details regarding site specific rules and access restrictions;
- Details regarding site specific hazardous areas and the need to adopt signage requirements; and
- Details about the specific working at heights to be performed and any site specific hazards.

Prior to contractors being procured and confirmed to undertake work on site, information such as the following is to be verified as part of contractor management processes and pre-work consultation:

- Work experience, training and competency evidence to verify that contractors are capable of performing the work and conversant with industry hazards;
- Work procedures or work method statements that identify key high-risk tasks, hazards, and controls to be implemented; and

- Details listing the plant and equipment to be brought onto site with respect to Australian Standard compliance, inspection and maintenance details (i.e. inspection records, logs, etc.)

## 12 TRAINING AND COMPETENCY

**Refer to CS-PTW-SOP-02 Training and Authorisation in the PTW System for additional information**

Persons who are required to undertake entry or work within a confined space shall be currently competent in the tasks that they are required to perform and in the site compliance standards and procedures relating to Confined space entry.

To be 'competent' in Confined Space Entry, a person shall have successfully completed relevant approved training in the role they shall be undertaking in confined space work. Refresher training is to be undertaken at an appropriate time, which is outlined in the matrix below.

Confined space training is competency-based training with an assessment component. Records are maintained at each site.

| Training Type | Target Group | Refresher Training | Description |
|---|---|---|---|
| Confined Space Entry Training | Work party<br>Basic Safety Observer<br>Confined Space Coordinator | 2-hours<br>(Every 2 years)<br><br>* *This training is completed as part of the online safety induction. Refresher periods occur when the online safety induction is due for renewal (2 years for contractors / 3 years for employees)* | ▪ Basic Confined Space entry training;<br>▪ Enter and work within a Confined Space;<br>▪ Understand the hazards and controls;<br>▪ Become familiar with CS Energy's assessment protocols, documentation and the sign on/off process. |
| Confined Space Assessment Training | OIC<br>PTWO<br>Confined Space Coordinator<br>Persons who design or supervise<br>Refer WHS Regulations 2011 Regulation 76. | 8-hours<br>(Every 2 years) | ▪ Detailed Confined Space entry training (equal to National Competency);<br>▪ Assess and manage Confined Space entry and work;<br>▪ Through use of CS Energy's Confined Space documentation gain a thorough understanding of the risk assessment process and legislative intent.<br>▪ Confined Space Coordinator to be plant competent |
| Confined Space Atmospheric Testing / Training | Personnel required to undertake air quality testing practices<br>Competent Persons | 6-hours<br>(Every 2 years) | ▪ Site specific training for Air Quality Testing and devices;<br>▪ Inspect, calibrate and use air quality testing devices;<br>▪ Document results;<br>▪ Determine the necessary control actions to be undertaken. |
| Rescue | Trained Rescue Personnel | (Every 2 years) | ▪ Specialist training for rescue team.<br>▪ Apply emergency response procedures.<br>▪ Apply communication processes.<br>▪ Confined space entry training. |

| Training Type | Target Group | Refresher Training | Description |
|---|---|---|---|
| BA Training | Specific Work Party Members | 12 months | ▪ Use of BA equipment for undertaking work. |
| Job Specific Emergency Response Plans | Work Party Members, stand by person and ERT | Prior to entry | ▪ Instruction on what is required to be done in the event of an emergency as per the Emergency Response Plan. Plan to be trialled. |
| Communication requirements | Work Party Members, stand by person | Prior to entry | ▪ Instruction on what is required to be done in the event of an emergency as per the Emergency Response Plan |

## 13 DESIGN CONSIDERATIONS

Other CS Energy processes and procedures manage Confined Space design, procurement and construction requirements. As a general rule - specific Australian Standards, Advisory Standards, Codes of Practice provide the minimum requirements (refer the reference documentation).

## 14 RECORDS

Documentation relating to confined space work shall be maintained, recorded and should be made available to the person and the regulatory authority inspectors on request. Records shall include:

- Training records (term of employment);
- Written Authorities (1 month);
- All risk assessments and JSEA's conducted for confined space work (5 years);
- The site confined space register;
- Inspection, calibration and maintenance activities;
- Testing and monitoring activities.
- Records should be kept in accordance with site Document Management Systems (DMS) requirements and the applicable State archive requirements.

## 15 PTW AUDITING AND REVIEW PROCESS

Compliance with the CS Energy's CS-PTW-HAZ-03 Working in Confined Spaces procedure will be reviewed in conjunction with the audit and review requirements of the PTW system as outlined in the Audit and Review Process for the PTW System procedure

## 16 PROCEDURE REVIEW

The CS Energy CS-PTW-HAZ-03 Working in Confined Spaces procedure will be reviewed on an as needs basis (e.g. following legislative change, new information, relevant incident, etc.)

## 17 DEFINITIONS

Refer to CS-PTW-02 Definitions document for full list

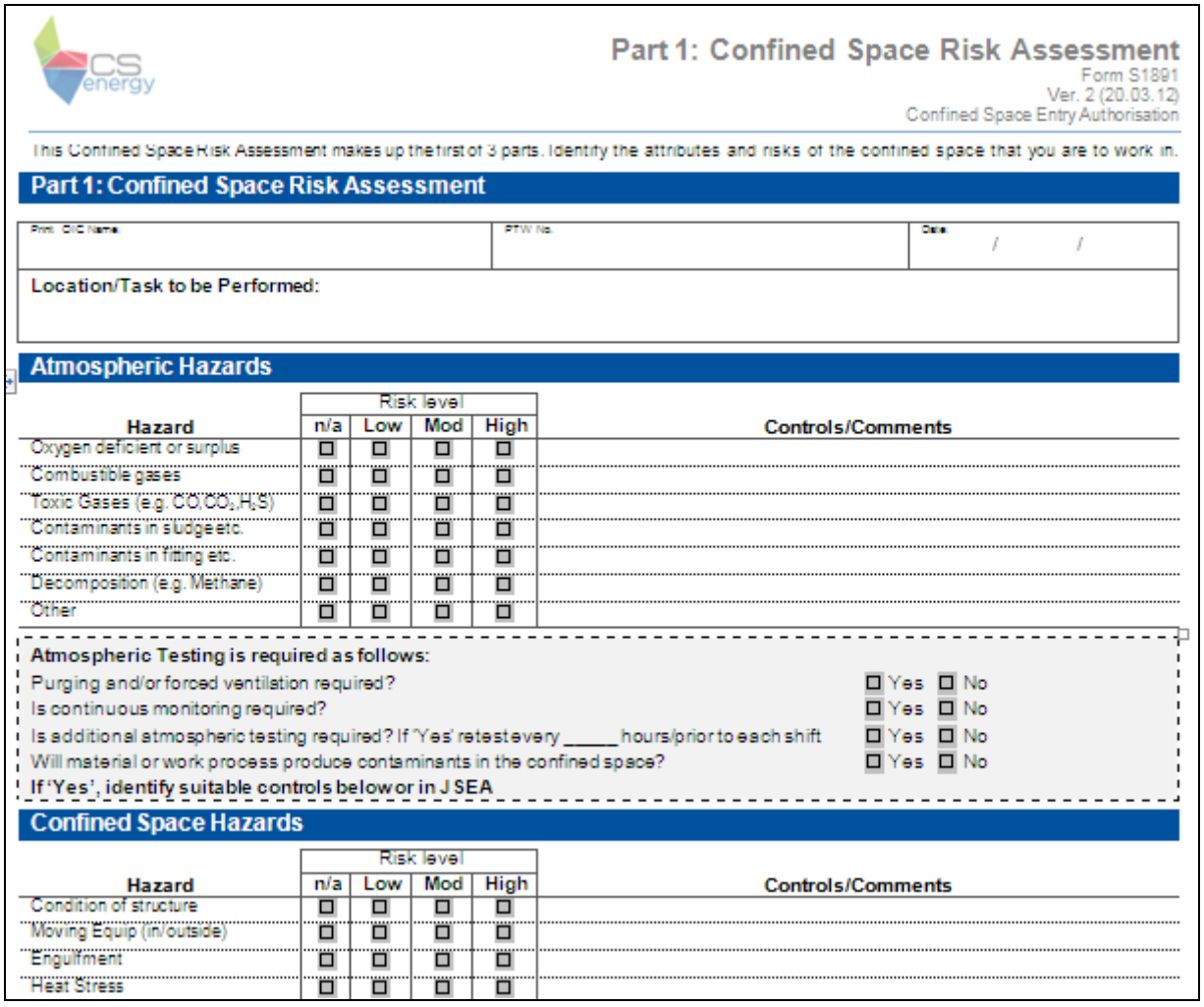
| Term | Definition |
|---|---|
| **Confined Space Opening** | An opening for entry or exit from a confined space shall be of adequate size to permit rescue of all persons who may enter the confined space. The opening may have an access cover and/or confined space sign to prevent unauthorised or unintentional entry to the confined space. |
| **Confined Space** | A confined space means an enclosed or partially enclosed space that:<br>• Is not designed or intended primarily to be occupied by a person; and<br>• Is, or is designed or intended to be, at normal atmospheric pressure while any person is in the space; and<br>• Is or is likely to be a risk to health and safety from:<br>o An atmosphere that does not have a safe oxygen level; or<br>o Contaminants, including airborne gases, vapours and dusts, that may cause injury from fire or explosion; or<br>o Harmful concentrations of any airborne contaminants, or engulfment. |
| **Nominated Entry Point** | A confined space opening nominated by the OIC as the point in which personnel will enter and exit the confined space. (Note: there may be more than one nominated entry point for large confined spaces (e.g. boiler furnace) |
| **Nominated Ventilation Point** | A confined space opening not used for entry and exit but open for purging or ventilation and required to stay open for the duration of the PTW. |
| **Control Point** | A nominated entry point where the PTW, JSEA, Confined space sign on/sign off and if required Stand-by person are located. (Note: PTW and JSEA may be located at an alternate central location (e.g. boiler furnace)) |
| **LEL** | Lower Explosive Level of flammable substance as indicated on Material Safety Data Sheet |

## 18 REFERENCES

| Reference No | Reference Title | Author |
|---|---|---|
| AS 2865 | Safe Working in a Confined Space | |
| | Work Health and Safety Regulation 2011 | |
| | Code of Practice for Confined Space Entry | |
| DR05564 | Draft Australian Standard 2865:2001 | |
| S1891 | Form - S1891 - Confined Space Risk Assessment Form | CS Energy |
| S1889 | Form - S1889 - Emergency Response Plan Form | CS Energy |
| S1833 | Form - S1833 - Confined Space Sign On/Off Sheet | CS Energy |
| S1890 | Form – S1890 - Atmospheric Testing Form | CS Energy |

# 19 APPENDIX

## 19.1 Appendix 1- Graphic of S1891 – Confined Risk Assessment Form



Part 1: Confined Space Risk Assessment
Form S1891
Ver. 2 (20.03.12)
Confined Space Entry Authorisation

This Confined Space Risk Assessment makes up the first of 3 parts. Identify the attributes and risks of the confined space that you are to work in.

**Part 1: Confined Space Risk Assessment**

| Print CIC Name | PTW No. | Date / / |
|---|---|---|
| Location/Task to be Performed: | | |

**Atmospheric Hazards**

| Hazard | Risk level n/a | Low | Mod | High | Controls/Comments |
|---|---|---|---|---|---|
| Oxygen deficient or surplus | ☐ | ☐ | ☐ | ☐ | |
| Combustible gases | ☐ | ☐ | ☐ | ☐ | |
| Toxic Gases (e.g. $CO$,$CO_2$,$H_2S$) | ☐ | ☐ | ☐ | ☐ | |
| Contaminants in sludge etc. | ☐ | ☐ | ☐ | ☐ | |
| Contaminants in fitting etc. | ☐ | ☐ | ☐ | ☐ | |
| Decomposition (e.g. Methane) | ☐ | ☐ | ☐ | ☐ | |
| Other | ☐ | ☐ | ☐ | ☐ | |

**Atmospheric Testing is required as follows:**

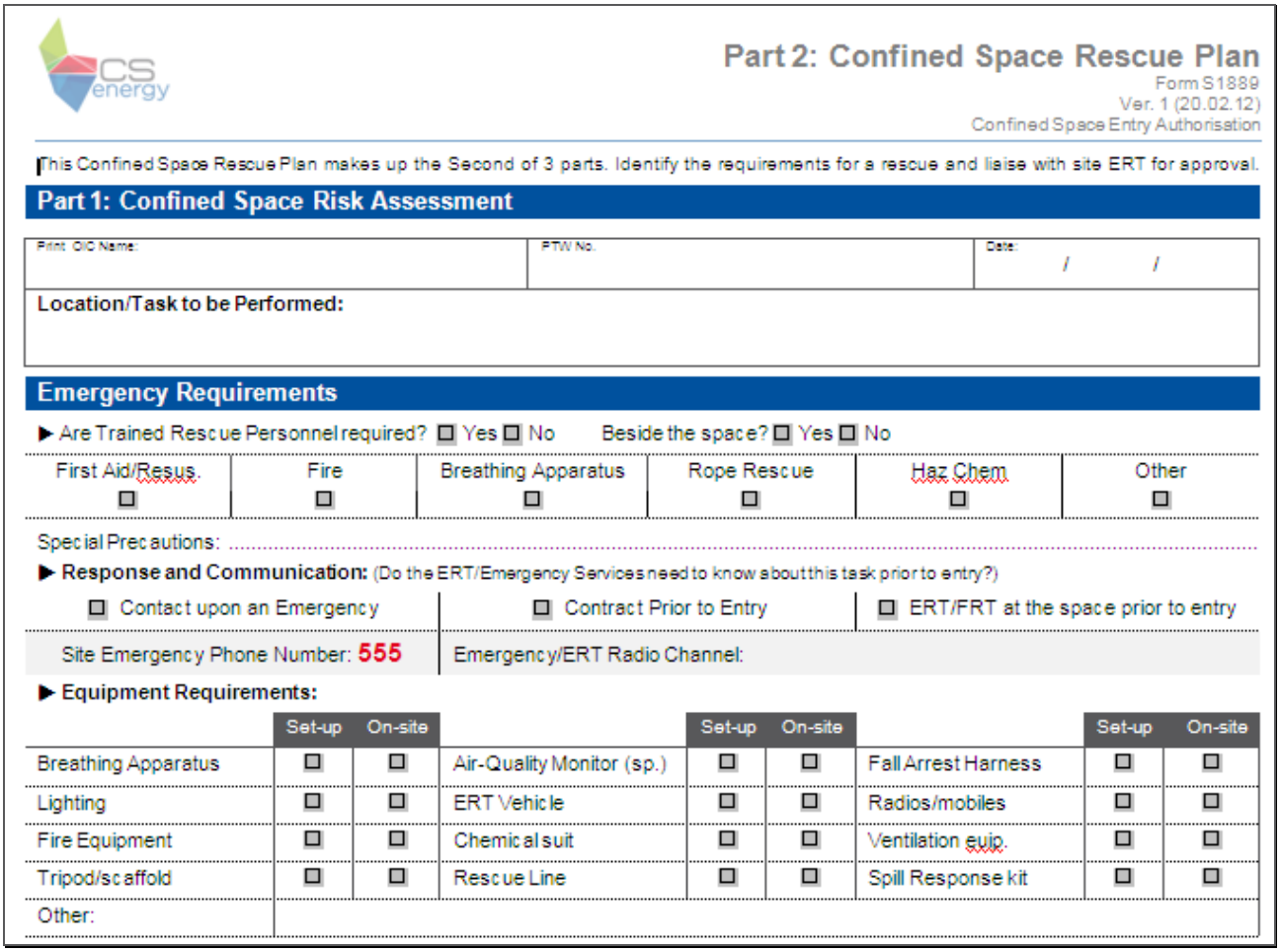
| | | |
|---|---|---|
| Purging and/or forced ventilation required? | ☐ Yes | ☐ No |
| Is continuous monitoring required? | ☐ Yes | ☐ No |
| Is additional atmospheric testing required? If 'Yes' retest every _____ hours/prior to each shift | ☐ Yes | ☐ No |
| Will material or work process produce contaminants in the confined space? | ☐ Yes | ☐ No |

**If 'Yes', identify suitable controls below or in JSEA**

**Confined Space Hazards**

| Hazard | Risk level n/a | Low | Mod | High | Controls/Comments |
|---|---|---|---|---|---|
| Condition of structure | ☐ | ☐ | ☐ | ☐ | |
| Moving Equip (in/outside) | ☐ | ☐ | ☐ | ☐ | |
| Engulfment | ☐ | ☐ | ☐ | ☐ | |
| Heat Stress | ☐ | ☐ | ☐ | ☐ | |

## 19.2 Appendix 2 – Graphic of S1889 – Confined Space Rescue Plan



### Part 2: Confined Space Rescue Plan

Form S1889
Ver. 1 (20.02.12)
Confined Space Entry Authorisation

This Confined Space Rescue Plan makes up the Second of 3 parts. Identify the requirements for a rescue and liaise with site ERT for approval.

**Part 1: Confined Space Risk Assessment**

| Print O/C Name: | PTW No. | Date: / / |
|---|---|---|
| **Location/Task to be Performed:** | | |

**Emergency Requirements**

▶ Are Trained Rescue Personnel required? ☐ Yes ☐ No Beside the space? ☐ Yes ☐ No

| First Aid/Resus. | Fire | Breathing Apparatus | Rope Rescue | Haz Chem | Other |
|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Special Precautions: .....

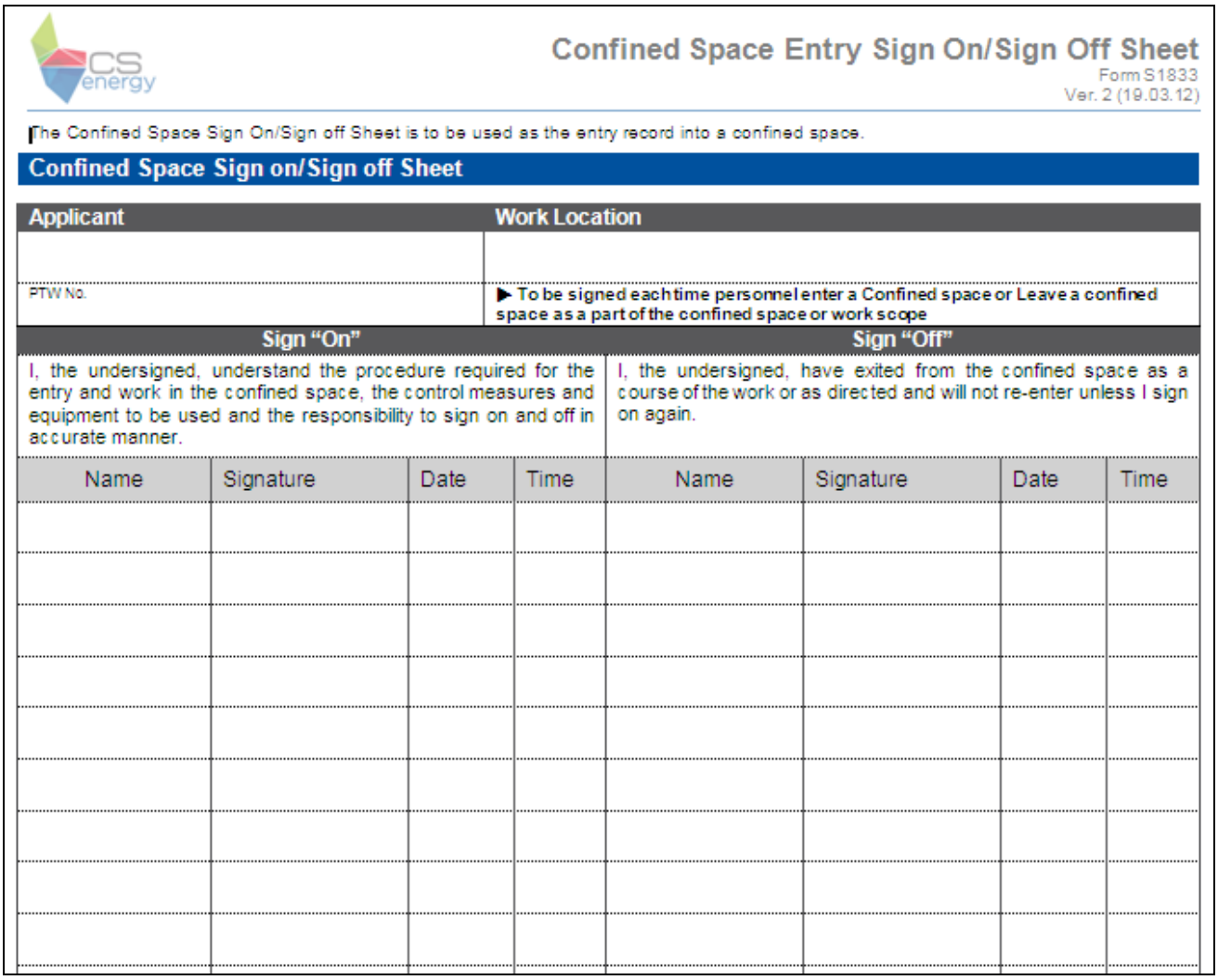
▶ **Response and Communication:** (Do the ERT/Emergency Services need to know about this task prior to entry?)

| ☐ Contact upon an Emergency | ☐ Contract Prior to Entry | ☐ ERT/FRT at the space prior to entry |
|---|---|---|
| Site Emergency Phone Number: **555** | Emergency/ERT Radio Channel: | |

▶ **Equipment Requirements:**

| | Set-up | On-site | | Set-up | On-site | | Set-up | On-site |
|---|---|---|---|---|---|---|---|---|
| Breathing Apparatus | ☐ | ☐ | Air-Quality Monitor (sp.) | ☐ | ☐ | Fall Arrest Harness | ☐ | ☐ |
| Lighting | ☐ | ☐ | ERT Vehicle | ☐ | ☐ | Radios/mobiles | ☐ | ☐ |
| Fire Equipment | ☐ | ☐ | Chemical suit | ☐ | ☐ | Ventilation equip. | ☐ | ☐ |
| Tripod/scaffold | ☐ | ☐ | Rescue Line | ☐ | ☐ | Spill Response kit | ☐ | ☐ |
| Other: | | | | | | | | |

## 19.3 Appendix 3 – Graphic of S1833 – Confined Space Sign On/Sign Off Sheet



Confined Space Entry Sign On/Sign Off Sheet

Form S1833
Ver. 2 (19.03.12)

The Confined Space Sign On/Sign off Sheet is to be used as the entry record into a confined space.

**Confined Space Sign on/Sign off Sheet**

| Applicant | Work Location |
|---|---|
| | |
| PTW No. | ▶ To be signed each time personnel enter a Confined space or Leave a confined space as a part of the confined space or work scope |

| Sign "On" | | | | Sign "Off" | | | |
|---|---|---|---|---|---|---|---|
| I, the undersigned, understand the procedure required for the entry and work in the confined space, the control measures and equipment to be used and the responsibility to sign on and off in accurate manner. | | | | I, the undersigned, have exited from the confined space as a course of the work or as directed and will not re-enter unless I sign on again. | | | |
| Name | Signature | Date | Time | Name | Signature | Date | Time |
| | | | | | | | |
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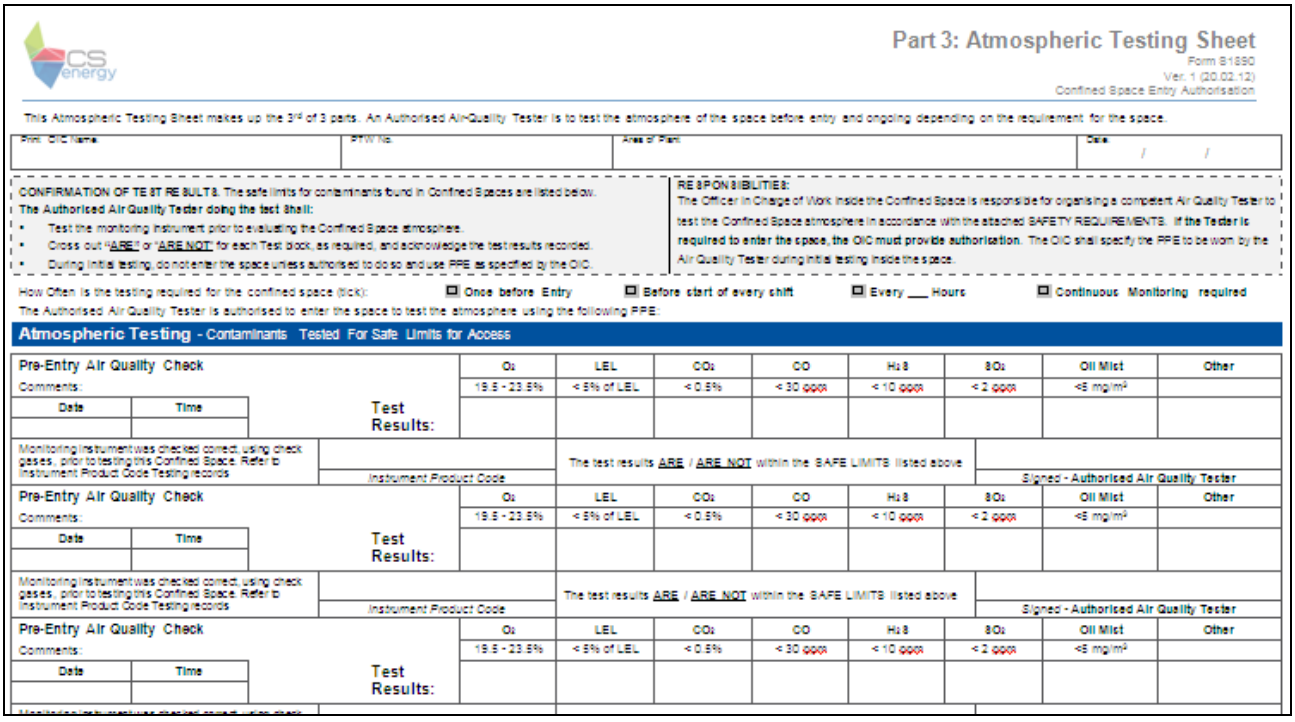
**This form should be amended to have an acknowledgement that the OIC has completed the work in the Confined Space and that all personnel have exited the space.**

## 19.4 Appendix 4 - Graphic of S1890 – Atmospheric Testing Sheet



Part 3: Atmospheric Testing Sheet

Form S1890
Ver. 1 (20.02.12)
Confined Space Entry Authorisation

This Atmospheric Testing Sheet makes up the 3rd of 3 parts. An Authorised Air-Quality Tester is to test the atmosphere of the space before entry and ongoing depending on the requirement for the space.

| Print OIC Name | PTW No. | Area of Plant | Date |
|---|---|---|---|
| | | | / / |

**CONFIRMATION OF TEST RESULTS.** The safe limits for contaminants found in Confined Spaces are listed below.
**The Authorised Air Quality Tester doing the test shall:**

- Test the monitoring instrument prior to evaluating the Confined Space atmosphere.
- Cross out 'ARE' or 'ARE NOT' for each Test block, as required, and acknowledge the test results recorded.
- During initial testing, do not enter the space unless authorised to do so and use PPE as specified by the OIC.

**RESPONSIBILITIES:**
The Officer in Charge of Work inside the Confined Space is responsible for organising a competent Air Quality Tester to test the Confined Space atmosphere in accordance with the attached SAFETY REQUIREMENTS. **If the Tester is required to enter the space, the OIC must provide authorisation.** The OIC shall specify the PPE to be worn by the Air Quality Tester during initial testing inside the space.

How Often is the testing required for the confined space (tick): ☐ Once before Entry ☐ Before start of every shift ☐ Every ___ Hours ☐ Continuous Monitoring required

The Authorised Air Quality Tester is authorised to enter the space to test the atmosphere using the following PPE:

**Atmospheric Testing** - Contaminants Tested For Safe Limits for Access

| Pre-Entry Air Quality Check | $O_2$ | LEL | $CO_2$ | CO | $H_2S$ | $SO_2$ | Oil Mist | Other |
|---|---|---|---|---|---|---|---|---|
| Comments: | 19.5 - 23.5% | < 5% of LEL | < 0.5% | < 30 ppm | < 10 ppm | < 2 ppm | <5 mg/m³ | |
| Date / Time / Test Results: | | | | | | | | |

Monitoring instrument was checked correct, using check gases, prior to testing this Confined Space. Refer to Instrument Product Code Testing records. *Instrument Product Code*

The test results ARE / ARE NOT within the SAFE LIMITS listed above

*Signed - Authorised Air Quality Tester*

| Pre-Entry Air Quality Check | $O_2$ | LEL | $CO_2$ | CO | $H_2S$ | $SO_2$ | Oil Mist | Other |
|---|---|---|---|---|---|---|---|---|
| Comments: | 19.5 - 23.5% | < 5% of LEL | < 0.5% | < 30 ppm | < 10 ppm | < 2 ppm | <5 mg/m³ | |
| Date / Time / Test Results: | | | | | | | | |

Monitoring instrument was checked correct, using check gases, prior to testing this Confined Space. Refer to Instrument Product Code Testing records. *Instrument Product Code*

The test results ARE / ARE NOT within the SAFE LIMITS listed above

*Signed - Authorised Air Quality Tester*

| Pre-Entry Air Quality Check | $O_2$ | LEL | $CO_2$ | CO | $H_2S$ | $SO_2$ | Oil Mist | Other |
|---|---|---|---|---|---|---|---|---|
| Comments: | 19.5 - 23.5% | < 5% of LEL | < 0.5% | < 30 ppm | < 10 ppm | < 2 ppm | <5 mg/m³ | |
| Date / Time / Test Results: | | | | | | | | |