

# PRO-4.5-0001-1-04

## Confined Space Entry

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Document Status:	Approved	
Version Number:	3	
Approved Date:	22-Aug-2018	
Next Review Due By:	22-Aug-2021	

To review changes refer to the 'Version Summary' at the end of this document.

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## Contents

1.	Purpose .....	3
2.	Scope.....	3
3.	Terms, Definitions and Abbreviations .....	3
4.	Roles and Responsibilities .....	4
5.	Training and Competence .....	5
5.1.	Confined Space Entry training.....	5
5.2.	Respiratory protection .....	6
5.3.	Rescue team member .....	6
6.	Confined Space Entry .....	7
6.1.	Risk Assessment.....	7
6.2.	Preparation of the confined space for entry .....	7
6.3.	Gas Testing and Monitoring.....	8
6.4.	Confined Space Entry Certificate.....	8
6.5.	Entry into and Work inside a Confined Space.....	8
6.6.	Prevention of Unauthorised Entry.....	10
6.7.	Emergency Response and Rescue Plan .....	10
7.	Verification .....	10
8.	Associated Documents.....	10
8.1.	Documents.....	10
8.2.	Records.....	11
9.	External References .....	11
10.	Version Summary .....	11

## List of Tables, Diagrams and Figures

Table 1:	Terms, Definitions and Abbreviations .....	3
Table 2:	Roles and Responsibilities.....	4
Figure 1:	Example of typical Confined Space Entry arrangement.....	9
Table 3:	Required References.....	10
Table 4:	Document Version Summary.....	11

## 1. Purpose

Whenever BP conducts construction, maintenance, demolition, remediation and other similar work that are typical of our industry, there is the potential for harm to people and the environment and for damage to equipment. This document provides requirements for Confirmed Space Entry in support of PRO-4.5-0001-0-01 Control of Work and WPCG-PRO-01 Work Authorisation.

This procedure sets out a required approach to Confined Space Entry in accordance with BP's Golden Rules of Safety, the requirements of GDP 4.5-0001 Control of Work, Annex1: Task Requirements: 1.3 Confined Space Entry, and OMS Group Essentials 3.2.1 and 4.5.1.

The document defines the requirements that apply to Confined Space Entry within ANZ MS&L to protect personnel from harm.

This procedure specifically details the requirements of the following documents:

- Group Defined Practice (GDP); [GDP 4.5-0001\\_2016 Control of Work](#)

## 2. Scope

The requirement specified in this procedure applies equally to BP employees, contractors and visitors engaged in the ANZ MS&L business.

Specific sites, areas and activities may have more detailed OMS requirements and where these exist the requirements will be specified in local procedures, safe work instructions, manuals, handbooks or specific standards.

## 3. Terms, Definitions and Abbreviations

**Table 1: Terms, Definitions and Abbreviations**

<b>Breathing Apparatus (BA)</b>	A form of respiratory protection that provides compressed breathing quality air to the wearer. The air may be supplied by airline or may be carried in cylinders. The air may be supplied to the user through a full face mask or a helmet.
<b>CSE</b>	Confined Space Entry
<b>Confined Space</b>	The Safe Work Australia Code of Practice for Confined Spaces, February 2014 provides the definition of a confined space as: "A confined space is determined by the hazards associated with a set of specific circumstances and not just because work is performed in a small space.

<b>Confined Space (continued)</b>	<p>A confined space means an enclosed or partially enclosed space that:</p> <ul style="list-style-type: none"> <li>a) Is not designed or intended primarily to be occupied by a person; and,</li> <li>b) Is, or is designed or intended to be, at normal atmospheric pressure while any person is in the space; and,</li> <li>c) Is or is likely to be a risk to health and safety from: <ul style="list-style-type: none"> <li>An atmosphere that does not have a safe oxygen level, or</li> <li>Contaminants, including airborne gases, vapours and dusts, that may cause injury from fire or explosion, or</li> <li>Harmful concentrations of any airborne contaminants, or engulfment.</li> </ul> </li> </ul> <p>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.”</p> <p>The definition within some jurisdictions in Australia and New Zealand may align with AS/NZS2865 in which the wording differs slightly. AS/NZS2865 includes a risk to health and safety of “a rising level of liquid that may cause drowning”. Whilst the AS/NZS2865 interpretation is consistent with the above, the applicable jurisdiction definition shall be followed.</p> <p>The AS/NZS 2865 Safe working in a confined space conforms to the hierarchy of controls set out in the New Zealand Health and Safety in Employment Act 1992.</p>
<b>Entry (to a confined space)</b>	The action by which a person or their breathing zone enters an opening into a confined space.
<b>Observer</b>	<p>An individual stationed outside one or more confined space entry points who monitors the authorized entrants and who performs all observer duties assigned this procedure.</p> <p>Sometime also referred to as sentry or attendant.</p>
<b>Oxygen deficient atmosphere</b>	An atmosphere containing less than 19.5 percent oxygen by volume.
<b>Oxygen enriched atmosphere</b>	An atmosphere containing more than 23.5 percent oxygen by volume.

## 4. Roles and Responsibilities

The roles and responsibilities associated with this procedure are listed in the following table.

**Table 2: Roles and Responsibilities**

<b>Planner</b>	The person responsible for planning the Confined Space Entry shall be accountable for ensuring that the Permit Receiver is communicated the requirements of this procedure as part of the planning process prior to work, and that planning for the work includes authorisation of entry by Permit Officer authorised to issue Confined Space Entry Certificates. The planner role is often not a dedicated role and may be fulfilled by Project
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	Manager, Project Engineer, Retail Field Maintenance Coordinator, etc.
<b>Permit Officer</b>	The Permit Officer shall ensure the requirements of this procedure and conditions of the risk assessment for the task and any associated work permits are followed. WPCG-PRO-01 Work Authorisation documents the responsibilities of the Permit Officer for all work permits associated with Confined Space Entry activities.
<b>Permit Receiver</b>	WPCG-PRO-01 Work Authorisation documents the responsibilities of the Permit Receiver for work permits associated with the Confined Space Entry activities. They are responsible for ensuring that only personnel who meet the training requirements within this procedure fulfil roles during the entry. They are also responsible for preparing and resourcing reliable emergency response and rescue arrangements for the Confined Space Entry.
<b>Site Representative</b>	<p>The Site Representative shall be the Site Manager or delegate, or if the site is unmanned it may be the Permit Officer.</p> <p>The Site Representative is responsible for the overall safety of the site. The Site Representative shall be aware of all other work or planned site operations that may interact with the Confined Space Entry (i.e. SIMOPs) and shall communicate to the Permit Officer any other works or site operations that may impact upon the proposed Confined Space Entry. They are responsible for ensuring that other parties on site that may be affected by the Confined Space Entry are informed.</p> <p>No entry shall be undertaken before the Site Representative countersigns the Confined Space Entry Certificate.</p>
<b>Observer</b>	<p>The Observer is responsible for:</p> <ol style="list-style-type: none"> <li>a) Maintaining a log recording the details of all personnel who enter and leave the space, including logging when they enter and leave.</li> <li>b) Understanding the nature of the hazards inside the particular confined space and recognising signs and symptoms that workers in the confined space may experience.</li> <li>c) Remaining outside the confined space and do no other work which may interfere with their primary role of monitoring the workers inside the space</li> <li>d) In the event of an emergency, initiating the emergency plan and having the means of summoning help in an emergency.</li> <li>e) Refusing entry to unauthorised persons attempting to enter the confined space.</li> <li>f) Ordering workers to exit the space if any hazardous situation arises.</li> </ol>

## 5. Training and Competence

### 5.1. Confined Space Entry training

**Entrants** and the **observer** shall have successfully completed Confined Space Entry training within the past three years, as follows:

1. In **Australia**, trained to a National Unit of Competence in Confined Space Entry by a Registered Training Organisation. This is recommended to be *MSAPMPER205C - Enter confined space*; or *RIIWHS202D - Enter and work in confined spaces*.
2. In **New Zealand** entrants require *Unit Standard 18426 – Demonstrate knowledge of hazards associated with confined space*; and observers *Unit Standard 17596 – Safety Observer*.

## 5.2. Respiratory protection

For entry which requires the use of respiratory protection, PRO-3.4-0000-0-10 Respiratory Protective Equipment Procedure defines BP requirements, including training in its use.

In **Australia**, if the entry is to include the provision of breathing apparatus the Entrants and Observer shall also be trained to a National Unit of Competence in Confined Space Entry by a Registered Training Organisation. This is recommended to be *MSAPMOHS216A Operate breathing apparatus*.

In **New Zealand**, if the entry is to include the provision of breathing apparatus the Entrants and Observer shall also have successfully completed *Unit Standard 25044 – Wear and operate compressed air breathing apparatus in the workplace*.

## 5.3. Rescue team member

To be a rescue team member that as part of the confined space rescue plan they are required to enter the space to retrieve an entrant, the person shall have successfully completed Confined Space Entry training with the training codes as follows:

1. In **Australia**, in addition to entrant training requirements, they must be trained to a National Unit of Competence in confined space rescue. This is recommended to be:
  - *PUAFIR316 Identify, detect and monitor hazardous materials at an incident*; and
  - *PUASAR022A Participate in a rescue operation*; and
  - *PUASAR025A Undertake confined space rescue*
2. In **New Zealand** in addition to entrant training requirements, the following is required:
  - *14562: Perform specialist rescues in confined spaces*

**Note:** This requirement does not apply to Emergency Services personnel. It applies only to workers defined as rescue team members within the Permit set.

## 6. Confined Space Entry

### 6.1. Risk Assessment

- a) A Risk Assessment is required for all Confined Space Entries. This must be a BP TRA facilitated by a BP HITRA trained facilitator, for entry into bulk fuel tanks (above and below ground) or LPG vessels. For all other entries it must be a Safe Work Method Statement, as a minimum.
- b) The Risk Assessment for the task should consider alternate means of performing work that does not require entry into a confined space, eliminating the risks associated with entry.
- c) The Risk Assessment for the Confined Space Entry should identify, control and monitor the potential hazards both inside and outside the confined space which may affect the safety of personnel within the confined space.
- d) The risk assessment(s) for all tasks to be undertaken in the confined space should consider the ventilation requirements and any additional monitoring of conditions for hazards identified, e.g. lead, welding fumes, etc. as applicable. Where applicable, consult requirements of PRO-4.5-0001-1-10 - Leaded Tank Entry and complete PRO-4.5-0001-1-10 Annex 1 Organic Lead Essentials (Note this also covers tanks previously in leaded service).
- e) The Risk Assessment for the Confined Space Entry should consider the effectiveness of the emergency response plan

### 6.2. Preparation of the confined space for entry

- a) Planning and co-ordination of entry into and work inside the confined space shall be completed to control and mitigate hazards that may arise during the work. This shall be completed in accordance with the requirements of WPCG-PRO-01 Work Authorisation for all work undertaken inside the confined space.
- b) Isolations for confined space entry shall be conducted in accordance with PRO-4.5-0001-1-02 Energy Isolation. A LOTO / Isolation plan shall be completed.
- c) Confirmation that controls to verify the confined space remains adequately ventilated, with the atmosphere remaining within safe limits, are in place and functioning. Where natural ventilation is insufficient, an appropriate positive ventilation system may be utilised. For example, venturis or fans may be required to remove contaminated air from dead spots in a confined space.

**Warning: Fire Risk:** *Under no circumstances should the atmosphere in a confined space be 'sweetened' using an oxygen hose, due to the significant additional fire risks arising from oxygen enrichment.*

**Inert Gas Risk:** *When hydrocarbon systems are shutdown, nitrogen or other inert gas is sometimes introduced in order to prevent formation of a flammable gas / air mixture. The inert gas then has to be displaced by air before safe entry can be made to such a confined space. Because air is 78% nitrogen, it is often not appreciated how hazardous pure nitrogen, and other inert gases, are to life. Incidents have*

*occurred where even a single breath has proved fatal. Other types of inert gas may be used in construction and testing work and any such leak within, or into, a confined space is equally hazardous.*

**Note:** *When assisted ventilation is provided, the minimum capacity provided should equate to 10 air changes/hour for the whole confined space. Any fumes from task-related hazards may require additional ventilation capacity.*

### **6.3. Gas Testing and Monitoring**

- a) A Confined Space Entry Certificate associated with a Work Permit which records the gas testing results for the confined space shall be issued prior to entry. To the greatest extent possible, such sampling and testing should be completed without entry to the confined space, using extended probes, etc. However, if some parts of the space cannot be sampled externally, then the initial entry should be carried out wearing BA, testing from the entry point into the confined space, ensuring the atmosphere is safe as they progress further into the confined space and with a rescue team on alert. No other work shall be carried out in the confined space until initial gas testing has been completed and a Confined Space Entry Certificate is issued.
- b) Continuous gas monitoring is required for all confined space entries. The minimum testing requirement for confined space entry is testing for each of H<sub>2</sub>S, O<sub>2</sub>, LEL and CO. Limits for entry are defined in WPCG-PRO-01 Work Authorisation.
- c) All gas monitoring, sampling and testing shall be carried out under the same ventilation conditions as planned for the entrant(s) to carry out the task(s).

### **6.4. Confined Space Entry Certificate**

- a) A Confined Space Entry Certificate shall be issued prior to entry by a BP authorised Permit Officer for Confined Space Entry Certificates, trained and authorised in accordance with WPCG-PRO-01 Work Authorisation.
- b) The Confined Space Entry Certificate shall be delivered verbally and in writing by the Permit Officer to the Permit Receiver prior to entry.
- c) Confirmation that the Confined Space Entry Certificate conditions are understood by the entrants, observer shall be documented by all parties signing on to the Work Permit.

### **6.5. Entry into and Work inside a Confined Space**

Entry into confined spaces possesses significantly high risk. Hazards which may not have high consequences in normal circumstances are magnified when associated with a confined space and may become life threatening.

- a) There shall be the presence of a dedicated and competent confined space Observer throughout the duration of the entry to communicate with and monitor the safety of the entrants within the confined space. The Observer shall never enter the space, including

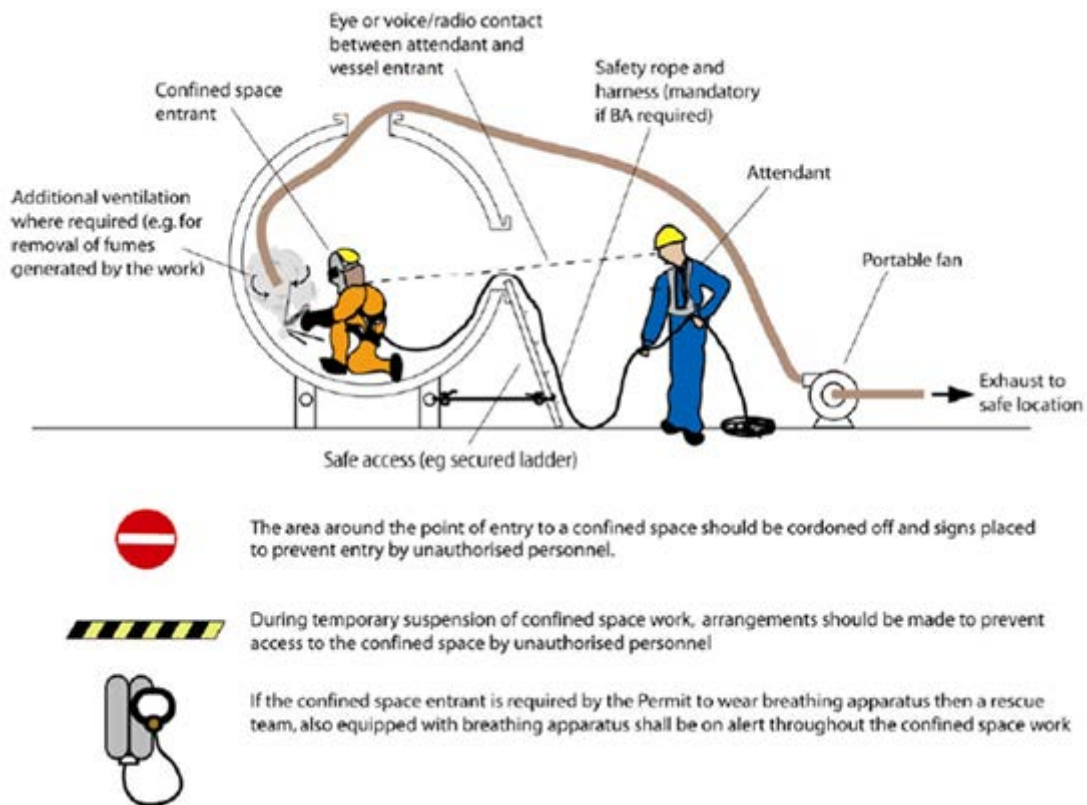


attempting a rescue. The Observer shall not be the Permit Officer for the Confined Space Entry Certificate or other work permits for work conducted within the confined space.

- b) The Confined Space Entry Certificate shall cover the safety of the confined space environment in support of a Work Permit for the task. A Confined Space Entry Certificate cannot be issued without an associated Work Permit. A Work Clearance cannot be used for work in a confined space.

The Permit Officer shall consider the following:

- a) Confirmation that the tank or vessel is positively isolated from other operating equipment in accordance with the requirements of PRO-4.5-0001-1-02 Energy Isolation.
- b) The risk of the confined space being re-contaminated as a result of the introduction of heat and disturbance of equipment;
- c) The risk of the confined space being re-contaminated from external sources of contaminants such as engine exhausts or tank vents, and
- d) Contamination of equipment to be worked on, including organic lead (from Avgas or tanks previously in leaded petrol service) and leaded paint.
- e) Ventilation requirements to maintain a safe atmosphere,
- f) Safe access and egress,
- g) Risk of engulfment
- h) For entry of personnel into excavations deemed to be confined spaces - the risk of collapse.



**Figure 1: Example of typical Confined Space Entry arrangement**

## 6.6. Prevention of Unauthorised Entry

A physical barrier with a written warning of the confined space hazard shall be in place at the confined space entry and exit points when:

- a) All employees have exited the confined space.
- b) Work has stopped.

## 6.7. Emergency Response and Rescue Plan

Reliable emergency and rescue arrangements shall be documented. All required rescue equipment (e.g. safety harnesses, lifting equipment, a lifeline) shall be immediately available. All specialised rescue equipment on standby shall be tested and certified in accordance with manufacturer's specifications and local regulatory requirements. Required personnel and equipment to affect rescue as documented in the plan shall be available prior to and for the duration of entry.

## 7. Verification

The key process steps outlined in this procedure shall be included in a Self-Verification Programme.

Refer to [PRO-8.2-0001-0-01 MS&L Self Verification Procedure](#) for further details to developing self-verification protocols.

## 8. Associated Documents

### 8.1. Documents

BP Permit to Work templates are issued in Australia by WPCG and within New Zealand is through the BP NZ HSSE Manager or delegate.

The following associated documents:

- Have been referenced in this procedure.
- Should be considered in understanding and applying the instructions provided in this procedure.

**Table 3: Required References**

Document Name	Document No	Document Location
Group Defined Practice - Control of Work	<a href="#">GDP 4.5-0001 2016</a>	OMS Library
Respiratory Protective Equipment Procedure	<a href="#">PRO-3.4-0000-0-10</a>	Controlled Document Register
Control of Work	<a href="#">PRO-4.5-0001-0-01</a>	Controlled Document Register
Energy Isolation	<a href="#">PRO-4.5-0001-1-02</a>	Controlled Document Register

Leaded Tank Entry	<a href="#">PRO-4.5-0001-1-10</a>	Controlled Document Register
WPCG Work Authorisation	<a href="#">WPCG-PRO-01</a>	WPCG website
MS&L Self Verification Procedure	<a href="#">PRO-8.2-0001-0-01</a>	Controlled Document Register

## 8.2. Records

Work Permits and Risk Assessments shall be retained in accordance with WPCG-PRO-01 Work Authorisation.

## 9. External References

This procedure was prepared with reference to relevant legislation/regulations including but not limited to, relevant Acts, Regulations, Australian Standards and industry codes and practices.

Details of current legislation/regulations can be provided by the HSSE Team on request.

## 10. Version Summary

The table below provides a summary of version history of this procedure.

**Table 4: Document Version Summary**

Version	Prepared by	Description of Change	Date	MoC
1	Adrian Connolly	Document created - Initial document	14 Nov 2014	
2	Adrian Connolly	Minor update to improve formatting, readability and clarity of document. Removal of duplication. Minimal material change to requirements, i.e. addition course option for confined space entrant and observer in Australia. Extension of training currency for observers and entrants to be 3 years (previously 2 years).	11 May 2016	11233
3	Adrian Connolly	Update to implement WPCG-PRO-01 Work Authorisation and moved to current template.	22 Aug 2018	11449

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