

## 1. PURPOSE AND OBJECTIVES

This Anglo American Technical Standard defines the minimum requirements for entering and working in a confined space to eliminate or minimise the risk of fatalities, injuries and incidents. A request for non-compliance with this standard must be managed through the *Technical Standard Exemption Request* process.

## 2. SCOPE

This Standard applies to all Anglo American managed businesses and operations, including contractors and visitors when involved in controlled activities at all phases of the operation's life cycle, including exploration, design, construction, operation and closure.

This technical standard and associated guideline shall be applied in conjunction with local legislation or applicable national standards of specific countries, regions and/or districts. Where the requirements of such legislation are in conflict with information in this standard (including the guideline) or exceed provisions of this standard, such regulations or standards shall apply.

This standard provides the controls, processes and means to ensure

1. The availability of accurate and up to date information related to confined spaces,
2. Appropriate confined space entry and work methods and devices are available,
3. The required competencies to perform confined spaces entry and work,
4. The accountabilities and responsibilities of each stakeholder are clearly defined.

## 3. PLANNING AND DESIGN

3.1 Confined spaces shall be identified through the risk management process. Access into the confined space shall be physically restricted using barriers to prevent unauthorised entry whenever possible. Appropriate signage shall be posted at each entry point denoting a confined space and that a permit or a special clearance process is required prior to entry. Where signage is impractical other means of communication need to be used.

3.2 All identified confined spaces shall be captured in a central site confined space register. This register should also include a list of all energy sources related to each confined space.

3.3 During the work planning cycle, activities requiring a potential entry in a confined space, alternative and safer methods shall always be considered. The application of the hierarchy of controls shall be used to guide, assess and explore alternatives, with the aim of avoiding/minimising the requirement for personnel to enter confined spaces.

3.4 All requirements, including roles and responsibilities, to plan, execute, control, monitor and supervise entry into and work in a confined space shall be defined, documented, implemented and communicated before the confined space is entered.

3.5 Employees entering, testing or required to work in confined spaces shall be trained, assessed as competent and authorised to do so.

3.6 A permit system shall be in place to manage all confined space entry requests and approvals. This permit system should include:

- a written approval issued by a competent person who is authorised to issue such permits,
- a risk assessment, including a procedure for the cleaning of any material buildup, prior to gaining entry,
- the need for a competent person to conduct atmospheric testing and monitoring to assess such things as oxygen levels, contaminants, temperature extremes, and concentrations of flammable substances with associated responses if results are at elevated levels. This must



cover for the atmospheric testing pre-entry (or initial) and while work is taking place (regular and continuous),

- equipment isolation procedures covering all energy sources,
- the requirement for breathing apparatus,
- ventilation requirements (during pre-entry and during activities whilst inside the confined space),
- the sign-in and sign-out of all persons entering the confined space,
- display of the permit,
- communication equipment,
- safety specification of equipment to be taken into the confined space,
- barricading,
- rescue plan and equipment,
- standby person, and
- a completion procedure.

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- 3.7 All energy sources related to the confined space shall comply to the isolation of energies technical standard (AA TS 106 001).
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- 3.8 Entry into a Confined Space may only be made with a task specific Job Risk Assessment (JRA) which has been explicitly approved in writing by the site's discipline or area specific designated or authorised person. The JRA shall consider any potential risk of engulfment, hazardous atmospheres, fire and how the work itself may change or deteriorate workplace conditions.
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- 3.9 All access to the confined space during work activities shall be controlled. Appropriate signage and barricading should be used to prevent unauthorised or inadvertant access into a confined space.
- 3.10 A task specific Confined Space Rescue Plan shall be developed by competent personnel that identifies the methods by which a rescue will be initiated, and personnel will be extracted from the Confined Space in the event of an emergency. The plan must include details of the specific equipment required to be in place prior to entry and the location / number of rescue personnel to be available. Rescuers shall be trained, fit to carry out their task and capable of using any equipment provided for rescue, e.g. breathing apparatus, lifelines, fire-fighting equipment.
- 3.11 A standby person (e.g. sentry/spotter) shall be present at the entry/exit of a confined space at all times while personnel are inside the confined space. The standby person must:
- be trained and competent to undertake standby duties,
  - not engage in any other work activity or task,
  - control and record the movement of personnel into and exiting the confined space,
  - be able to communicate with personnel inside the confined space and with key/rescue personnel at all times,
  - not enter the confined space, even in an emergency, and
  - be knowledgeable about the rescue plan.
- 3.12 An adequate communications system shall be provided to enable communication between people inside and outside the confined space and to summon help in an emergency.
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- 3.13 A process for ensuring adequate ventilation shall be in place when identified by the risk assessment. If the maintenance of a safe oxygen level in a confined space is dependent on mechanical ventilation, equipment shall:
- be continuously monitored while the confined space is occupied, and
  - have the control (include remote power supply) clearly identified, tagged and manned to guard against unauthorised interference.

**4. IMPLEMENTATION AND MANAGEMENT**


- 4.1 Every site shall have a procedure for entry and work in a Confined Space (while fulfilling the Isolation of Energies Standard - AA TS 106 001) and contain as a minimum:
- the description of Confined Space in each operation,
  - accountables and responsibilities of stakeholders,
  - training, competency and authorisation requirements,
  - identified thresholds or levels of hazardous substances to allow work to safely proceed or continue,
  - documents needed to work inside confined space (e.g. necessary permits to work),
  - emergency rescue plan,
  - applicable Personal Protective Equipment and applicable monitoring equipment.
- 4.2 The atmosphere inside a confined space shall be tested for relevant toxic or flammable substances and oxygen content (deficient & enriched) prior to entering. The testing may require specialised instrumentation for checking all extremities of the confined space without physically getting into the confined space (telescopic rod, vacuum pump, probe/hose). The atmospheric monitoring shall consider the following:
- be conducted by a competent person,
  - monitoring requirements e.g. frequency, shall be detailed in the confined space entry permit,
  - atmospheric monitoring results shall be recorded on the confined space entry permit and be available at the entry point to the confined space,
  - if atmospheric monitoring cannot confirm a safe environment prior to entry, then personnel shall not enter the Confined Space until further controls are implemented and the working atmosphere becoming safe for entry and work, and
  - atmospheric testing equipment shall have a current and valid calibration certificate. A bump test should be conducted before each day's use in accordance with the manufacturer's instructions.
- 4.3 Only intrinsically safe equipment shall be used inside confined spaces where flammable or potentially explosive atmospheres are likely. In certain confined spaces (e.g. inside metal tanks) suitable precautions to prevent electric shock shall include the use of extra low voltage equipment (typically less than 50 V or as stipulated by local legislation) and, where necessary, residual current devices.
- 4.4 Any Personal Protective Equipment (PPE) used shall be risk based and only used as a last means of control. Where employees are required to make use of full body harnesses when working inside a confined space, lifelines shall be attached to the harnesses and should run back to a manned point outside the confined space.

**5. PERFORMANCE MONITORING**

- 5.1 An audit of the requirements and compliance of this standard shall be undertaken at an annual frequency. Documentation related to the design, modification and maintenance of **confined space systems** and hardware shall be an element of this audit.
- 5.2 All incidents related to this standard shall be reported and investigated according to the site procedures or local legislation.

**APPENDIX A: REFERENCED DOCUMENTS**

| Document Number | Previous Number(s) | Title                     |
|-----------------|--------------------|---------------------------|
| AA TS 110 002   | None               | Confined Spaces Guideline |

**APPENDIX B: RECORD OF AMENDMENTS**

Version 1 : New document created based on Confined Spaces Bowties conducted in 2019.  
(Responsible person Peter Ellen, December 2019)

**APPENDIX C: DEFINITIONS**

**Bump Test:** is a brief exposure of the monitor to gas to verify that the sensors respond and the instrument alarms function accordingly.

**Competent Person:** A person who has the right training and experience to be regarded as competent under relevant legislation and / or internal regulations.

**Confined Space:** A Confined Space is an enclosed or partially enclosed space that is not intended or designed primarily as a place of work. Due to its nature, a Confined Space poses particular hazards to personnel that include the potential for:

- an oxygen deficient or otherwise non-breathable atmosphere,
- an oxygen enriched environment supportive of combustion conditions,
- an atmosphere that is explosive or flammable,
- an atmosphere that is toxic or contains harmful contaminants,
- temperature levels that pose a hazard to personnel,
- entrapment risks due to the nature of the confined space's entry and exit points,
- engulfment risks due to the inrush of free-flowing solids or fluids.

Entry to a confined space is defined as a person's whole body, upper body or head being located within the confined space.

Confined spaces may include, but are not limited to:

- storage tanks, process vessels, boilers, pressure vessels, tank-like compartments that have only a manhole for entry, ceiling and floor spaces,
- open-topped spaces such as pits, or grease traps, or excavations more than 1.5 meters deep,
- pipes, pumps, sewers, shafts, ducts, drains, tunnels, cellars, basements and similar structures, and,
- abandoned workings and exploration audits.

**Permit:** An official document giving someone authorisation for entry or work.

**Standby person (or Sentry/Spotter):** means a person located outside the Permit space who controls and records Confined Space entry and performs other duties as defined by this Standard.

**Rescue Plan:** A procedure planned in advance, to safely retrieve a person (or persons) from within a confined space, in the event of an incident, accident or any other emergency.