

Australian/New Zealand Standard™

Safe working in a confined space



Standards Australia



AS/NZS 2865:2001

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Australian Maritime Safety Authority
Department of Defence, Australia
Department of Industries and Business, N.T.
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Australian/New Zealand Standard™

Safe working in a confined space

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee SF-037, Work in Confined Spaces to supersede AS 2865 — 1995.

The Standard retains the format of the previous edition in that, depending upon jurisdictional requirements, the clauses highlighted in boxes may be used as the basis of regulations, while the remaining clauses form the minimum recommended methods of achieving a safe system of work and meeting the essential requirements. Alternative methods, if used, should provide at least an equal level of safety. It is also possible for the entire Standard to be called up in a legislative framework.

The common essential requirements are those contained in boxes. An organization which does not comply with the Standard in all respects would still be required to meet the requirements in the boxes.

The Standard was prepared to meet the need for requirements and procedures for the prevention of occupational illness, injuries and fatalities associated with persons entering and working in a confined space. It is designed not only to ensure that confined spaces are made safe for those entering them, but also to highlight the likely hazards associated with such work areas and the relevant safe work processes necessary to deal with these hazards.

The Standard emphasizes the responsibilities for safety before entry and during the entire operation. Such responsibilities cover conditions of work for an organization's own employees as well as for any contractors or other persons on the premises. This Standard requires that adequate steps be taken to eliminate or control hazards. It also requires that all persons involved in the entry of a confined space be trained and instructed on the nature of the hazards and the precautions to be followed.

The significant changes to this edition are as follows:

- (a) A small change to the definition of a confined space, clarifying the intent that oxygen level can mean either a deficiency or an excess.
- (b) The inclusion of an Appendix that provides guidance on applying the definition of a confined space.
- (c) Revision of the Appendix dealing with risk assessments, together with a suggested risk assessment form.
- (d) Revision of the written authority form in an Appendix.
- (e) The removal of phrases which restate the rights and duties of employers, employees, designers etc.

Item (e) came about as a result of the 1995 Industry Commission Inquiry into Occupational Health and Safety, which found that the restatement of rights and duties in national standards incorporated into subordinate legislation was a significant source of confusion about workplace health and safety.

Many of the clauses which form the recommendations have been altered so as to improve the clarity of the content. Better explanations of the intent of those clauses highlighted in boxes have also been made.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard
Safe working in a confined space

1 SCOPE

This Standard sets out the particular requirements and procedures to ensure the health and safety of any persons required to enter or work in a confined space. For the purpose of this Standard, a person whose head, i.e. the breathing zone, or upper body is within a confined space is considered to have entered the confined space.

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

Requirements and procedures for ensuring general occupational health and safety, for example, welding safety and prevention of slips and falls, are dealt with in other standards and regulations rather than being specifically addressed in this Standard. It should be noted that a confined space may exacerbate other hazards, for example, noise or heat stress.

This Standard is framed to help designers, manufacturers, suppliers, modifiers and users where confined spaces are involved to achieve a high safety standard. It is not exhaustive in its coverage, but it is intended to cover those areas which are of particular concern in the workplace. It will be necessary for persons who require further information to research various other legislation, standards, codes and guidance notes.

This Standard is not intended to cover situations which are not at atmospheric pressure, such as work in hyperbaric chambers. At pressures significantly higher or lower than the normal atmospheric pressure, expert guidance should be sought.

Specific workplaces, for example, dangerous goods storage areas, may also be subject to other standards, regulations or codes of practice.

Most places of work are not confined spaces in accordance with the definitions in this Standard. Risk assessments should still be made at these places of work to ensure that people are not exposed to risk. For example, national standards and codes of practice for hazardous substances and plant provide procedures for conducting risk assessments for hazardous substances. These may include atmospheric contaminants.

NOTE: A summary of procedures for atmospheric safety during confined space entry is given in Appendix A.

2 OBJECTIVES

The objectives of this Standard are to provide guidance to —

- (a) eliminate or minimize the need to enter confined spaces; and
- (b) provide for the health and safety of all persons who need to enter or work in confined spaces by preventing exposure to hazards which may otherwise be experienced when working in a confined space, and thereby prevent collapse, injury, illness or death arising from exposure to those hazards.

3 APPLICATION

This Standard is applicable to confined spaces as defined in Clause 5.4. The Standard does not apply to underground mining and tunnelling construction, nor does it apply to work which is carried out at other than normal atmospheric pressure.

The requirement to prepare a written risk assessment and written authority for entry may be waived only for the duration of an emergency.

4 REFERENCED DOCUMENTS

A list of referenced documents is given in Appendix B.

5 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

5.1 Atmospheric monitoring

The continuous measurement of oxygen levels or selected atmospheric contaminants over an uninterrupted duration of time.

5.2 Atmospheric testing

The short term testing, which is not continuous, of oxygen level and atmospheric contaminants.

5.3 Competent person

A person who has, through a combination of training, education and experience, acquired knowledge and skills enabling that person to perform correctly a specified task.

5.4 Confined space

An enclosed or partially enclosed space that is at atmospheric pressure during occupancy and is not intended or designed primarily as a place of work, and—

(a) is liable at any time to—

- (i) have an atmosphere which contains potentially harmful levels of contaminant;**
- (ii) have an oxygen deficiency or excess; or**
- (iii) cause engulfment; and**

(b) could have restricted means for entry and exit.

NOTE: See Appendix C for additional guidance.

5.5 Contaminant

Any dust, fume, mist, vapour, biological matter, gas or other substance in liquid or solid form, the presence of which may be harmful to health and safety.

5.6 Entry (to a confined space)

When a person's head, i.e. the breathing zone, or upper body is within the boundary of the confined space.

NOTE: Inserting an arm for the purpose of atmospheric testing is not considered an entry to a confined space.

5.7 Explosive limit

5.7.1 Lower explosive limit (LEL)

In relation to a flammable contaminant, the concentration of the contaminant in air below which the propagation of a flame does not occur on contact with an ignition source.

5.7.2 Upper explosive limit (UEL)

In relation to a flammable contaminant, the concentration of the contaminant in air above which the propagation of a flame does not occur on contact with an ignition source.

5.8 Exposure standard

An airborne concentration of a particular substance in the person's breathing zone, exposure to which, according to current knowledge, should not cause adverse health effects nor cause undue discomfort to nearly all persons. The exposure standard can be of three forms: time-weighted average (TWA), short-term exposure limit (STEL) or peak exposure limit.

The following terms are used in calculating levels of atmospheric contaminants:

- (a) *Time-weighted average (TWA)* The average airborne concentration of a particular substance when calculated over a normal eight-hour workday, for a five-day working week.
- (b) *Short-term exposure limit (STEL)* A 15-minute TWA exposure which should not be exceeded at any time during a workday even if the eight-hour TWA average is within the TWA exposure standard. Exposure at the STEL should not be longer than 15 minutes and should not be repeated more than four times a day. There should be at least 60 minutes between successive exposures at the STEL.
- (c) *Peak* A maximum or peak airborne concentration of a particular substance determined over the shortest analytically practicable period of time, which does not exceed 15 minutes.

NOTE: For further information refer to the National Occupational Health and Safety Commission's *Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment* [NOHSC:1003(1995)].

5.9 Flammable range

The range of flammable contaminant (percentage by volume) in air in which an explosion can occur upon ignition. Expressed by lower explosive limit (LEL) and upper explosive limit (UEL).

5.10 Hot work

Welding, thermal or oxygen cutting, heating, including fire-producing or spark-producing operations that may increase the risk of fire or explosion.

5.11 Regulatory authority

A Minister of the Crown, a government department, commission or other authority having power to issue regulations, orders or other instructions having the force of law in respect of any subject covered by this Standard.

5.12 Safe oxygen range

A minimum oxygen content in the atmosphere of 19.5 percent by volume under normal atmospheric pressure (equivalent to a partial pressure of oxygen (pO_2) of 19.8 kPa (148 mm Hg)), and a maximum oxygen content in the atmosphere of 23.5 percent by volume under normal atmospheric pressure (equivalent to a partial pressure of oxygen (pO_2) of 23.8 kPa (179 mm Hg)).

At pressure significantly higher or lower than the normal atmospheric pressure, expert guidance should be sought.

5.13 Shall

Indicates that a statement is mandatory.

5.14 Should

Indicates a recommendation.

5.15 Stand-by person (emergency response initiator)

A competent person assigned to remain on the outside of, and in close proximity to, the confined space and capable of being in continuous communication with and, if practical, to observe those inside. In addition, where necessary, initiate emergency response procedures and operate and monitor equipment used to ensure safety during entry and work in the confined space.

5.16 Written authority

A document which permits entry to or work in a confined space.

NOTE: The written authority is sometimes known by other names, for example as an entry permit, an access authority or a permit to work.

6 DESIGN, MANUFACTURE, SUPPLY AND MODIFICATION

6.1 The confined space shall be designed, manufactured and supplied so as to minimize the need to enter the confined space.

6.2 The confined space shall be designed, manufactured and supplied so as to minimize the risks associated with work in a confined space.

6.3 Openings for entry to and exit from a confined space shall be of adequate size to permit rescue of all persons who may enter the confined space.

6.4 Any modification to a confined space shall not detrimentally affect the safe means of entry to, exit from, or work in the confined space.

NOTE: See Appendix D for more details.

6.5 Identification and security

The entry points to a confined space should be signposted and secured against unauthorized entry.

7 CONSULTATION

7.1 In implementing the requirements of this Standard, consultation shall take place between the stakeholders, or their representatives, in accordance with the relevant provisions of the occupational health and safety legislation in each jurisdiction.

8 HAZARD IDENTIFICATION

8.1 For any work proposed, any confined spaces and the hazards associated with working in or on those confined spaces shall be identified.

8.2 Hazards

Fatalities or severe injuries may occur as a result of hazards, including but not limited to the following:

- (a) Oxygen levels in the atmosphere below 19.5 percent in the confined space which may be caused by—
 - (i) slow oxidation reactions of either organic or inorganic substances;
 - (ii) fire, or other rapid oxidization;
 - (iii) displacement of oxygen in the atmosphere by another gas;
 - (iv) absorption by stored substances; or
 - (v) respiration.

- (b) Oxygen enriched atmospheres are those with an oxygen content greater than 23.5 percent by volume. Atmospheres with oxygen enrichment have an increased risk of fire or explosion, particularly when flammable contaminants are present.

Causes of oxygen enriched atmospheres in confined spaces include:

- (i) Wrongfully purging confined spaces with oxygen.
 - (ii) Leaking oxygen hose or fitting when using oxy-acetylene equipment.
 - (iii) Oxygen injection systems (used in sewerage systems)
 - (iv) Use of chemicals which release oxygen e.g. hydrogen peroxide.
- (c) The presence of contaminants on surfaces or in the atmosphere. Contaminants may be in the form of solids, liquids, sludges, gases, vapours, fumes or particulates. The sources of contaminants encountered may include—
 - (i) the manufacturing process;
 - (ii) the substance stored or its by-products (for example, disturbing decomposed organic material can liberate toxic substances such as hydrogen sulphide, while biological hazards such as bacteria, viruses or fungi may also be present); and
 - (iii) the operation performed in the confined space (for example, painting with coatings containing toxic or flammable substances, and welding or brazing with metals capable of producing toxic fumes).
 - (d) Operation of moving equipment (for example, being trapped by augers, crushed by rotating or moving parts such as conveyor belts).
 - (e) Uncontrolled introduction of steam, water, or other gas or liquid.
 - (f) Suffocation by solids (for example, grain, sand, flour and fertilizer).
 - (g) Drowning in liquids.
 - (h) Electricity.
 - (i) Explosion or fire.
 - (j) Entrapment.
 - (k) Extremes of temperature.

8.3 Additional factors

Undertaking work in confined spaces may greatly increase the risk of injury from hazards, such as—

- (a) noise, which may be caused by hammering or the use of equipment within the confined space;
- (b) temperature, either high or low, which can result from the work process or the weather conditions, or where appropriate ventilation is not provided or appropriate clothing is not worn;
- (c) radiation within a confined space (for example, from X-rays, radiation gauges, isotopes, lasers and welders);
- (d) inappropriate manual handling;
- (e) falls, trips and slips;
- (f) inadequate lighting; and
- (g) openings obstructed by fittings or equipment that could impede rescue.

9 RISK ASSESSMENT

9.1 A risk assessment shall be undertaken by a competent person or persons before work associated with the confined space is carried out. The assessment shall be in writing and take into account at least the following:

- (a) The nature and inherent hazards of the confined space.**
- (b) The work required to be done, including the need to enter the confined space.**
- (c) The range of methods by which the work can be done.**
- (d) The hazards involved and associated risks involved with the actual method selected and equipment proposed to be used.**
- (e) Emergency response procedures.**
- (f) The competence of the persons to undertake the work.**

9.2 The risk assessment shall be revised whenever there is evidence to indicate that it is no longer valid.

9.3 Risk factors

Factors to consider when undertaking a risk assessment include—

- (a) arrangements for emergency response procedures e.g. first aid and resuscitation;
- (b) the number of persons occupying the space;
- (c) the number of persons required outside the space to maintain equipment essential for the confined space task, to ensure adequate communication with and observation of the persons within the confined space, and to properly initiate emergency response procedures (see also Clause 10.43);
- (d) all proposed operations and work procedures, particularly those that may cause a change in the conditions in the confined space;
- (e) the soundness and security of the overall structure and the need for illumination and visibility;
- (f) the identity and nature of the substances last contained in the confined space;
- (g) the steps needed to bring the confined space to atmospheric pressure;
- (h) the atmospheric assessment, including testing or monitoring, to be undertaken and the parameters to be assessed before the written authority is issued;
- (i) risks associated with other hazards;
- (j) the physiological and psychological demands of the work and the competency of those persons involved in confined space work or stand-by duties;
- (k) adequate instruction of those persons in any work procedure required, particularly those which are unusual or non-typical, including the use and limitations of any personal protective equipment and mechanical or other equipment to be used;
- (l) the availability and adequacy of appropriate personal protective equipment, protective clothing and emergency equipment for all persons likely to enter the confined space;
- (m) whether signs—
 - (i) comply with AS 1319; and
 - (ii) indicate that only authorized entry is permitted;

- (n) the need for additional control measures, for example—
 - (i) prohibition of hot work in adjacent areas;
 - (ii) prohibition of smoking and naked flames within the confined space and, where appropriate, the adjacent areas;
 - (iii) avoidance of contamination of breathing atmosphere from operations or sources outside the confined space, such as from the exhaust of an internal combustion engine;
 - (iv) prohibition of movement of equipment such as forklifts in adjacent areas; and
 - (v) prohibition of spark generating equipment, clothing and footwear;
- (o) whether purging or cleaning in the confined space is necessary;
- (p) whether hot work is necessary; and
- (q) conditions that may impede entry and exit or the conduct of the work in the confined space, for example, plant layout, dimensions, manual handling and ergonomic aspects of the work.

NOTE: A sample risk assessment is provided in Appendix E.

9.4 Risk assessment process

A risk assessment should be determined and implemented. Guidance on risk assessment may be found in AS/NZS 3931 and AS/NZS 4360.

Risk assessments should be conducted by a competent person or persons. It is often found that a team will produce a better outcome than individual efforts. Such a team should possess a wide ranging knowledge which should include —

- (a) a knowledge of the particular confined space under assessment;
- (b) any work methods which will be used during the operations to be carried out in or on the confined space;
- (c) confined space safety practices; and
- (d) risk assessment processes.

9.5 Generic risk assessment

Where multiple similar confined spaces in which similar work is performed are present and the risk factors are identical, a generic risk assessment may be appropriate.

9.6 Review of risk assessment

The period between risk assessments should be determined in consultation between the stakeholders or their representatives. Risk assessments should be reviewed whenever a significant change in the risk is likely to result from—

- (a) installation or modification of plant;
- (b) a change in equipment operating conditions;
- (c) a change in the atmosphere or working environment; or
- (d) a change in working arrangements or procedures.

NOTE: Where new plant is involved, designers and manufacturers of equipment which incorporates confined spaces should take steps to ensure that risk assessments take place at appropriate intervals in consultation with the current users of the plant. The users of the plant may vary according to the phase in the life cycle of the plant.

10 CONTROL MEASURES

10.1 If a risk assessment identifies a risk to health or safety arising from work in a confined space, the risk shall be eliminated or, if this is not possible, minimized by the implementation of appropriate risk control measures. The risk control measures shall be documented.

10.2 Hierarchy of control measures

A hierarchy of control measures to eliminate or, if this is not possible, minimize the risk should be followed in the priority order listed and consists of—

- (a) elimination;
- (b) substitution;
- (c) isolation;
- (d) engineering controls;
- (e) administrative controls; and
- (f) use of personal protective equipment.

Personal protective equipment should only be used either as a last resort when all of the other control measures (singly or in combination) have failed to adequately control the risk, or in an emergency response.

10.3 Combining control measures

All attempts should be made to apply each element of the hierarchy of controls in the order given in Clause 10.2, moving to the next lower element when application is not possible. The process of progressively applying the elements of the hierarchy of controls should continue until the risks have been reduced to acceptable levels. It may be necessary to use a combination of control measures to eliminate or minimize the risk.

NOTE: Some control measures are mandatory for confined spaces.

10.4 Review of control measures

Control measures should be carefully reviewed and improved, extended or replaced as necessary to ensure adequate control. Reviews should take place at regular intervals or as required by Clause 9.6.

10.5 Prior to any person entering a confined space, all potentially hazardous services, including all process services, normally connected to that space shall, where it is possible to do so, be isolated in order to prevent —

- (a) the introduction of any materials, contaminants, agents or conditions harmful to persons occupying the confined space; and
- (b) the activation or energizing in any way of equipment or services which could pose a risk to the health or safety of persons within the confined space.

10.6 Isolation requirements

It may be necessary to withdraw a confined space from service before it is prepared for entry. Procedures should be in place to ensure that all persons who may be involved with the repair, maintenance or operation of the confined space are advised.

10.7 Isolation factors

Positive steps should be taken to achieve the following:

- (a) Prevention of accidental introduction into the confined space of materials, through equipment such as piping, ducts, vents, drains, conveyors, service pipes or fire protection equipment.

Attention is drawn to hazards which may arise from the operation of some protective services in an occupied confined space (for example, fixed fire extinguishing systems).

NOTE: Additional guidance is given in Appendix F.

- (b) De-energization and lockout, or if lockout is not feasible then tagout, or both lockout and tagout, of machinery, mixers, agitators or other equipment containing moving parts in the confined space.

This may require additional isolation, blocking or de-energizing of the machinery itself to guard against the release of stored energy (for example, springs).

- (c) Isolation of all other energy sources which may be external to, but still capable of adversely affecting the confined space (for example, heating or refrigerating methods).

NOTE: Where it is not possible to isolate all potentially hazardous services, appropriate control measures should be put into place.

10.8 Methods of isolation from hazardous services

A confined space should be isolated from hazardous services before entry is permitted. The method of isolation should be in accordance with one of the following methods or by an alternative method ensuring equivalent security:

- (a) Removal of a valve, spool piece, an expansion joint in piping leading to, and as close as practicable to, the confined space and blanking or capping the open end of the piping leading to the confined space. The blank or cap should be identified to indicate its purpose. Blanks or caps should be of a material that is compatible with the liquid, vapour or gas with which they are in contact. The material should also have sufficient strength to withstand the maximum operating pressure, including surges, which can be built up in the piping.
- (b) Insertion of a suitable full-pressure spade (blank) in piping between the flanges as close as practicable to the confined space. The full-pressure spade (blank) should be identified to indicate its purpose.
- (c) Where neither of the methods described in Items (a) and (b) is practicable, isolation by means of closing and locking, or closing and tagging, or both, of at least two valves in the piping leading to the confined space. A drain valve between the two closed valves should also be locked open or tagged open to atmosphere as part of this method.

10.9 Methods of isolation from moving parts

Before entry is permitted to any confined space that in itself can move, or in which agitators, fans or other moving parts which may pose a risk to personnel are present, the possibility of movement should be prevented by using one of the methods described below or by an alternative method offering equivalent security. Equipment or devices with stored energy, including hydraulic, pneumatic, electrical, chemical, mechanical, thermal or other types of energy, should be reduced to a zero energy condition.

The person entering the confined space should proceed as follows:

- (a) The person entering the confined space or a competent person authorized in writing should place a lock or tag, or both, on the open circuit breaker or open isolating switch supplying electric power to equipment with hazardous moving parts, to indicate that a person is in a confined space and that such isolation should not be removed until all persons have left the confined space. When a lock is used, the key should be kept in the possession of the person making entry or the competent person. Spare keys should not be accessible except in cases of emergency.
- (b) Where a power source cannot be controlled readily or effectively, a belt or other mechanical linkage should be disconnected and tagged to indicate that a person is in a confined space and that the belt or linkage should not be reconnected until all persons have left the confined space.
- (c) Where the methods described in Items (a) and (b) cannot be used, moveable components should be locked, and switches, clutches or other controls should be tagged to indicate that a person is in a confined space and that the locks and tags should not be removed until all persons have left the confined space.
- (d) Where more than one person is in the confined space, the isolating device should be either—
 - (i) locked or tagged, or both, by each person entering the confined space; or
 - (ii) locked or tagged, or both, by a competent person authorized in writing.
- (e) Where the locking or tagging is undertaken by a competent person authorized in writing, all persons entering the confined space should verify, or have it verified to them, that isolation is effective prior to their entry.

10.10 Removal of means of isolation

The locks, tags, blanks or other protective systems should only be removed after the person responsible for direct control of the work in the confined space has given written authority that the work has been suspended or completed and all persons have vacated the confined space and written authority has been given for return to service of the confined space.

10.11 Where necessary, the confined space shall be cleared of contaminants by use of a suitable purging agent. The purging agent or any gas used for ventilation purposes shall never be pure oxygen or gas mixtures with an oxygen content greater than 21%.

10.12 Cleaning of a confined space

Where it is feasible, a confined space should be cleaned from outside the confined space therefore eliminating the need for entry. All substances, which are likely to present a hazard to persons who enter the confined space, should be removed prior to any entry to the confined space.

Where entry to a confined space is necessary for the purposes of cleaning, a written authority is required.

NOTE: Additional recommendations for cleaning are given in Appendix G.

10.13 Location of contaminants

Potentially hazardous levels of contaminants may be trapped in sludge, scale or other deposits, brickwork or behind loose linings, in liquid traps, or in instrument fittings, and may be released only when, for example, it is disturbed or heat is applied. Similarly, such material may lodge in joints in vessels or in bends of connecting pipes or other places where removal is difficult.

All regimes of inspection for confined spaces should include measures to detect the occurrence of these latent contaminations conditions. When such conditions are detected, appropriate control measures should be taken to remove the hazard or reduce the level of risk in the confined space.

10.14 Pressure differentials

Care should be taken in purging a confined space to preclude rupture or collapse of the enclosure due to pressure differentials.

10.15 Flammable contaminants

When flammable contaminants are to be purged, purging and ventilation equipment designed for use in hazardous locations (see AS 2380.7, AS 2430.1 and AS/NZS 61241.3) should be used and precautions taken to eliminate all sources of ignition. For example, fans used to exhaust flammable contaminants should be intrinsically safe.

NOTE: Some Australian Standards specify a lower LEL than those required by this Standard, for example AS 1940.

10.16 Static electricity

Where necessary, reference should be made to AS/NZS 1020 to guard against static electricity discharge.

10.17 Ventilation

Ventilation of a confined space should be by natural, forced or mechanical means to establish and maintain a safe atmosphere. This ventilation should be continued throughout the period of occupancy.

10.18 Combustion engines

Combustion engines, for example used to drive generators and pumps should not be used inside a confined space unless control measures are implemented to ensure the safety of the atmosphere.

Control measures should include the complete removal of exhaust gases and continuous atmospheric monitoring including monitoring for carbon monoxide.

The risk arising from the use of combustion engines can be eliminated by using electrically or pneumatically powered equipment.

10.19 Exhaust location

Any contaminants removed from the confined space should only be exhausted to the atmosphere at a location where they do not represent a risk. Combustion engines providing power for compressed air or any other use associated with the work being done in the confined space should be located so that their exhaust emissions cannot enter the confined space or contaminate air being supplied to the confined space.

10.20 Control of mechanical ventilation equipment

Where the maintenance of the atmosphere in a confined space is dependent on mechanical ventilation equipment, for example, a fan, the equipment should—

be continuously monitored while the confined space is occupied; and

have the controls (including any remote power supply) clearly identified and tagged to guard against unauthorized interference.