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*Revised and reissued June 2011*

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NRS: 13 36 77

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**The advice provided in this pamphlet is basic safety and health information. Ensure you are familiar with your site procedures and, if uncertain, discuss this information with your supervisor and safety and health representative.**

## Mine safety matters

# Working in confined spaces



## THE HAZARDS

Confined spaces:

- can have limited or restricted access, making it difficult in an emergency to enter or exit with life-saving equipment or to rescue a worker
- are not designed for continuous worker occupancy
- may contain potentially hazardous atmospheres, such as too little or too much oxygen, or toxic or flammable substances
- can be places where conditions of engulfment or entrapment, could exist or develop.

Other hazards are:

- material and equipment from the normal work process remaining in the workspace and affecting access
- unstable material or equipment above the space.

Confined spaces include:

- storage tanks and bins
- process vessels

- boilers
- sumps and pump hoppers
- pipes
- abandoned tunnels or shafts
- degreasing pits
- wells
- excavation holes and trenches
- refrigeration units
- tanks or vats
- wheel motor housings.

## WHAT CAN HAPPEN

- Asphyxiation or lack of oxygen:
  - Oxygen-deficient atmospheres can result from rusting inside a vessel, the presence of other contaminants, and decaying organic matter such as sump oil or rotting vegetables
  - Engulfment by a free-flowing material (e.g. crushed ore) or a rising level of liquid

(e.g. process fluid) causing suffocation or drowning

- Explosion or fire:
  - A confined space increases the risk of flammable concentrations being reached
  - Oxygen-enriched atmospheres are highly flammable
- Exposure to toxic atmosphere:
  - Contaminants can be generated during work, such as when welding or cleaning
  - Residual material from the process
- Sudden illness of worker (e.g. heart attack, heat stroke)
- Difficulty in completing a rescue in the case of an emergency:
  - Restricted entry means the confined area can hinder rescue
  - Communication with the outside may be difficult

## SAFE WORK PRACTICES

- Identify and label all confined spaces on the minesite
- Develop a confined space entry policy, procedure, permit and close out system to isolate, tag-out and secure (by engineering control) any confined space
- The confined space permit must be checked and signed off before work commences
- A job safety assessment (JSA) or similar safety plan detailing all aspects of the job must be agreed to and signed off by every person involved in the job, before the work commences
- Employees must be trained to recognise the hazards associated with confined spaces
- Confined spaces should only be entered by suitably trained people
- If the atmosphere is unknown or unsafe, use self-contained breathing apparatus (SCBA) if it is impossible to make it safe by ventilation

- SCBA use must be by certified personnel whose training should cover procedures, testing, use and maintenance of SCBA and other relevant protective equipment
  - Never enter a confined space without testing the atmosphere first with a calibrated meter:
    - frequently check oxygen and flammable gas levels
    - frequently identify and test for other contaminants if known to be present
  - Thoroughly ventilate the space with air to achieve a normal atmosphere whenever possible — never purge with oxygen
  - Re-test the atmosphere at regular intervals
  - Every atmospheric test and every time a person enters or exits the space must be communicated and recorded
  - Never enter a confined space without a permanent lookout who remains outside the space, and is in continuous communication with and, if practicable, observing those inside, and is able to contact the emergency rescue team if needed
  - Ensure all lines containing inert, toxic, flammable or corrosive substances are valved off and blanked or disconnected and separated before entering a confined space
  - Apply your personal lockout tag in accordance with the site procedures
  - Ensure emergency services are available and are aware of all work being done in confined spaces
- For further advice, refer to regulation 4.2 — Confined Spaces of the Mines Safety and Inspection Regulations 1995 and Australian Standard AS 2865:2009 Safe Working in a Confined Space.

# Working in confined spaces

