

# PROCEDURE

## Confined Space

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### 1 PURPOSE

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All work in confined spaces shall be conducted in accordance with this procedure, the appropriate Australian Standards and, if the work is on a site, the specific site requirements.

### 2 SCOPE

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This procedure is applicable to all employees and contractors who may have a requirement to work in a confined space. It is intended that personnel at supervisory level will administer this procedure as required.

It addresses performance of hazardous work outside and inside confined spaces including the use of equipment required to perform the functions of, but not limited to, the following:

- arc welding, cutting and gouging
- gas welding, flame cutting and gouging
- brazing and soldering
- metal preparation processes
- confined space work
- welding on containers
- use of hazardous substances in enclosed areas

The procedure covers detection and protection from noxious (flammable and toxic) gasses in confined spaces and work areas.

This procedure does not remove the onus of responsibility from any person to work in a safe manner or to use welding and flame cutting equipment in accordance with correct and trained trade practice.

### 3 DEFINITIONS

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For the purpose of this procedure, the following definitions will apply:

**Company / the Company.** Refers to Reay Services Group.

**JSA.** Job Safety Analysis.

**Risk Assessment.** Identify what, why and how risks can arise and what possible injuries may occur in undertaking the task about to be done. It must be conducted prior to starting any task.

**PPE (Personal Protective Equipment).** PPE is to be used when working with this procedure, and is to be provided by the Company and maintained by the holder.

**Hazardous Work Areas (Confined Space).** Are areas that, by their physical nature, location and restricted access or egress may present a hazard to those who enter. A confined space is defined in the Australian Standard AS 2865:

**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; is liable at any time to:

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- Have an atmosphere which contains potentially harmful levels of contaminant;
- Have an oxygen deficiency or excess; or
- Cause engulfment; and
- Could have restricted means for entry and exit.

**LEL.** Lower explosive level.

**UEP.** Upper explosive level.

**Responsible Person.** A person appointed under this procedure to supervise and administer welding, heating and cutting, in hazardous work areas (including work in confined spaces) and issue the permit. The responsible person shall be trained to Nationally Recognised Training in Safe work in a Confined Space.

The following persons may be appointed as Responsible Persons under this procedure.

- Managers
- Supervisors and Leading Hands
- Safety Officer with required training
- Employee with the required training
- Contractor's Supervisory Staff

**Competent Person.** A person who is familiarised and competent against this procedure and has the relevant qualifications for the duties which they perform, and has Nationally Recognised Training for Safe Work in Confined Space.

**Short term worker.** A competent person who does not have the Nationally Recognised Training for Safe Work in Confined Space and is not an employee of the Company or the Company's contractor but is required to carry out work in a confined space. This worker must be supervised by a competent person at all times whilst working in a confined space. However the person supervising the worker must have the Nationally Recognised Training for Safe Work in Confined Space.

## 4 ROLES AND RESPONSIBILITIES

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All company Employees and Contractors are responsible for complying with the requirements of this procedure.

Refer to QMS-PRO-026 – Authority and Responsibilities Procedure for further details.

## 5 WORK IN CONFINED SPACES

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### 5.1 Confined Spaces

The confined spaces are to be defined as part of the overall risk assessment for the particular project and must be listed on a confined space register. The Supervisor will be responsible for ensuring all employees are aware of the identified confined spaces during the specific site safety induction.

### 5.2 Work Permits

No work is to be carried out in a Confined Space unless authorised by a Responsible Person, in accordance with this procedure, and where the risk assessment dictates, a Work Area Permit has been issued for the work. Work Area Permits for working in hazardous areas will be maintained in the Company workshops at the completion of the task and at the entrance of the work area whilst the work is being undertaken in the confined space.

On client sites, client site permit procedures will be used.

### 5.3 Procedure

- Work in Confined Spaces is to be in accordance with AS 2865 - 2001 - "Safe Working in Confined Spaces".
- Before work commences in any confined space a nominated Responsible Person shall inspect the area using a Job Safety Analysis and issue instructions that may be necessary to ensure the area is in a safe condition. This may require a structural inspection, air quality testing or temperature testing.
- When satisfied the work can proceed safely, the Responsible Person shall complete a Work Area Permit to authorise the work and issue the permit to those persons engaged to perform the tasks. Physical work in the area may commence once the permit has been issued.
- The Work Area Permit will only remain effective until the completion of the shift on which it was issued. If work is to continue beyond the end of the shift the area is to be re-inspected and the Responsible Person on that shift must issue a new permit.
- Upon completion of the work, the Responsible Person shall inspect the area to ensure that all equipment is removed, the work is complete and conditions are safe for normal operations to resume. When the area is considered safe, the original copy of the Work Area Permit shall be signed-off and cancelled by the Responsible Person. The original permit document will then be stored with the project site files.

## 6 TRAINING

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Familiarisation on the contents of this procedure shall form part of the training for employees and the Responsible person. All persons required to work in confined space will have Nationally Recognised Training in Safe work in a confined Space.

All personnel working in a confined space must be trained in the use of gas monitors and must be competent in Company welding and cutting procedures.

Visitors are to refer to section 12 of this procedure.

## 7 INSPECTION OF EQUIPMENT

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All electrical tools, hand tools, welding and cutting equipment to be used in a confined space shall be placed on a register and the currency of their inspection/ compliance checked prior to use.

## 8 SAFETY CHECKS AND PROCEDURES

Prior to the commencement of welding, cutting or heating operations all equipment to be used shall be checked for the presence of defects. These checks are to be carried out by the persons in direct control of the equipment.

Electric welding safety checks shall include all terminals, return lead clamps, leads, electrode holders and connectors.

Gas welding and heating safety checks shall include regulators, flash back arresters, hoses, connectors and hand pieces.

## 9 CONFINED SPACES

This section applies to all work performed in a confined space and shall be in accordance with AS 2865 - "Safe working in Confined Spaces".

Confined spaces are defined as "Hazardous Areas" so all work performed in these areas must be covered by a Area Work Permit and if required the atmosphere shall be monitored and data recorded (see attached) using a calibrated gas monitor that has upper and lower limits set to the levels listed below.

Where there is any possibility that the atmosphere within a confined space may be contaminated **the atmosphere must be tested**, and the results recorded, prior to any persons entering the space. It is the employer's obligation to ensure the following:

- a) The oxygen level in the confined space is safe ie greater than 19.5%, but less than 23.5%
- b) Atmospheric contaminants in the confined space are reduced to below the relevant exposure standards
- c) The concentration of flammable (explosive) contaminant in the confined space is below 5 percent of its Lower Explosive Limit (LEL). If the flammable contaminant is found to be greater than 5 percent of its LEL, but less than 10 percent of its LEL, the persons in the confined space shall be removed unless a continuous monitoring gas detector is used at all times while a person is present.

### Gas Chart

Gas	Chemical Symbol	Density	Explosive Limits/ Threshold Limit Value
Air		1.00	
Oxygen	O <sup>2</sup>	1.11	Non-flammable, supports combustion
Hydrogen	H <sup>2</sup>	0.07	LEL 4% UEL 74%
Methane	CH <sup>4</sup>	0.55	LEL 5% UEL 14%
Acetylene	C <sub>2</sub> H <sub>2</sub>	0.906	LEL 2.5% UEL 80-85%
LPG		2.00	LEL 1.8%

Gas	Chemical Symbol	Density	Explosive Limits/ Threshold Limit Value
			UEL 9.5%
Carbon Monoxide	CO	0.97	30 PPM
Carbon Dioxide	CO <sub>2</sub>	1.53	5,000 PPM

d) The confined space is free of extremes of temperature.

Ensure that the area is adequately ventilated and perform frequent checks with a gas monitor and document. If ventilation fans are required they should be operating effectively. Extra care may need to be taken if the area has been previously treated with cleaning fluids, solvents, paints etc.

**Pure oxygen or gas mixtures with oxygen concentration greater than 21 percent by volume must not be used for the purposes of purging or providing ventilation.** Vent fan power leads and isolators should be clearly identified by the application of an "Information Tag" with the isolator in the "on" position and the reason section of the tag showing:

**"VENT FAN - DO NOT TURN OFF".**

All equipment both being worked on or likely to affect conditions within the confined space must be isolated and Danger Tagged in accordance with the Company's procedure or the specific Clients Isolating Procedures.

STAND-BY PERSON (AS 2865) The employer shall ensure that, **where the risk assessment indicates a risk to health and safety**, a stand-by person shall be provided to keep the worker in continuous communication and where practicable, observation of the personnel in the confined space is constantly maintained to limit the exposure of any risks of hazards to the worker. The observer is to halt any work if there is a hazard that could injury persons or damage equipment.

**A Confined Space Entry by Permit Only sign is to be displayed at all confined space entry points.**

Always ensure that adequate clear means of access and egress are available.

The maintenance of welding or ventilation equipment shall not be carried out in confined spaces.

## 10 CONFINED SPACE WORK

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Confined space work in confined space is to be used in conjunction with the Company's Welding and Cutting procedure.

## 11 EMERGENCY PROCEDURE

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In the event of an emergency all equipment is to be isolated and the emergency alarm is to be raised. The responsible person is to carry out atmospheric testing and if it is safe enter the confined space with First Aid personnel. No other work is to continue, only persons helping in the emergency are permitted to enter the confined space all other personnel are to remain at the muster area **(NO PERSONNEL IS TO LEAVE SITE UNTIL GIVEN PERMISSION BY THE GENERAL MANAGER OR MANAGING DIRECTOR)**.

When site rescue teams arrive the responsible person is to liaise with the team. The rescue team is to take control of the incident.

**DO NOT ATTEMPT A SOLO RESCUE AS THIS MAY COST YOU YOUR LIFE.**

### 12 VISITORS/SHORT-TERM WORKERS

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Entering confined space without Nationally Recognised Training for Safe Work in a Confined Space, the procedure as follows:

See in definition for Short-term workers.

- No visitors or short term workers are permitted to enter a Confined Space without the required Nationally Recognised Training unless they have exempted by the General Manager.
- Visitors or short term workers must be accompanied by a Competent Person at all times and not left to their own devices.
- Visitors or short-term workers must be familiarised with this procedure.
- Sign on and off the permit and follow its requirements.

### 13 HAZARDOUS WORK AREAS

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Hazardous Work Areas on a work site are defined as (but not limited to) the following:

1. Confined space work associated with fuel oil, lubricating oil and reagent bulk storage tanks, pipelines and their immediate surrounds.
2. Inside any confined space, as defined in Australian Standard A.S.2865 - 1995.
3. Confined space work in areas on and about equipment where excess lubricants may accumulate from time to time.
4. Any work which involved the introduction of cleaners, solvents, adhesives, or paints to any of the above mentioned structures or similar enclosed structures.

### 14 REFERENCE DOCUMENTS

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Work Health & Safety Act and Regulations 2011

WHS-FRM-005: Hazardous Work Area Permit

WHS-PRO-009: Isolation & Tag Out Procedure

WHS-PRO-003: PPE Procedure

Australian Standards:

AS 1674.1 Safety in Welding and Allied Processes – Fire Precautions

AS1674.1 Safety in Welding and Allied Processes – Electrical

AS 2865 Confined Space