

**TYNE AND WEAR METROPOLITAN FIRE BRIGADE
GENERIC RISK ASSESSMENT AND OPERATING PROCEDURE**

| OPERATIONAL PROCEDURE DETAILS | |
|-------------------------------|--|
| DESCRIPTION | CATEGORY |
| WORKING IN CONFINED SPACES | GENERIC HAZARD |
| OPERATING ENVIRONMENT | |
| 1. | Incident ground - Fires and Special Services. |
| 2. | Training venues - On station and off station. |
| 3. | Brigade Premises - Contractors undertaking work. |

RISK ASSESSMENT

INTRODUCTION.

The Brigade have a duty to make a suitable and sufficient assessment of the health and safety risks to employees and to provide employees with comprehensive and relevant information on risks identified.

This assessment examines the hazards, risks and controls that relate to brigade personnel working in confined spaces.

Confined Spaces information is available to personnel in the following form, Operational Aide-Memoir (Aid to Dynamic Risk Assessment) carried on appliances, Standard Operating Procedures and Lecture Pack held on station and a Technical Reference File held by the Risk Assessment Team at BHQ.

This document has been designed to be read easily, quickly and with only ESSENTIAL information included. The following pages contain the information that all personnel MUST know.

This procedure examines the hazards, risks and controls that relate to fire service personnel working in confined spaces.

Under the regulations a confined space has two defining features:

- ▶ It is a space which is substantially (but not always entirely) enclosed.
- and**
- ▶ There is a reasonably foreseeable risk of serious injury to personnel from Hazardous substances or conditions in the space.

HAZARDS AND RISKS

HAZARD 1

Flammable substances and oxygen enrichment of the atmosphere leading to a risk of explosion/backdraft, and/or the ignition of airborne flammable contaminants, giving rise to serious injury.

LEVEL OF RISK 1

| | | | |
|-----------------|------------------|-------------|-------------------|
| | Slightly Harmful | Harmful | Extremely Harmful |
| Highly unlikely | Trivial | Tolerable | Moderate |
| Unlikely | Tolerable | Moderate | Substantial |
| Likely | Moderate | Substantial | Intolerable |

HAZARD 2

Toxic gas, fume or vapours may lead to loss of consciousness or asphyxiation.

LEVEL OF RISK 2

| | | | |
|-----------------|------------------|-------------|-------------------|
| | Slightly Harmful | Harmful | Extremely Harmful |
| Highly unlikely | Trivial | Tolerable | Moderate |
| Unlikely | Tolerable | Moderate | Substantial |
| Likely | Moderate | Substantial | Intolerable |

HAZARD 3

Ingress or presence of liquids, leading to drowning, or other injury depending on corrosive or toxic nature of substance.

LEVEL OF RISK 3

| | | | |
|-----------------|------------------|-------------|-------------------|
| | Slightly Harmful | Harmful | Extremely Harmful |
| Highly unlikely | Trivial | Tolerable | Moderate |
| Unlikely | Tolerable | Moderate | Substantial |
| Likely | Moderate | Substantial | Intolerable |

KEY CONTROL MEASURES

Safe systems of work

No person should enter a confined space for any purpose unless it is not reasonably practicable to achieve the objectives in any other way.

If an entry into a confined space is unavoidable then a full dynamic risk assessment must take place. Assess the general condition of the confined space to identify what might be present (or was present) and whether the concentration of oxygen is normal.

Occasionally, the need to commence work before danger is eliminated may be unavoidable. On those occasions it is imperative that a safe system of work is in place for persons entering, working in and leaving a confined space. The dynamic risk assessment must therefore weigh the benefits of immediate action against the potential risk to personnel. Consideration must be given to:

- the need for a rescue to be undertaken, its urgency and the number of casualties
- the availability of resources
- the nature and extent of the hazards and risks
- the experience, knowledge and training of the breathing apparatus crews available

Safe systems of work normally require that power supplies are isolated, mechanical equipment is secured, the ingress of substances which may pose a risk is prevented and arrangements for emergency rescue are in place before personnel enter a confined space.

BA

Unless the atmosphere has been proven to be safe by a competent person and is subject to regular monitoring, BA must be worn as a matter of routine, Stage II control procedures must be implemented and intrinsically safe communications provided between wearers, BA entry control officers, personnel supervising safety lines and safety officers.

The use of BA may only be relaxed if a competent person has declared the atmosphere safe following atmospheric testing. Testing must be carried out before entry and regularly whilst personnel are in the confined space.

Lighting

Adequate and suitable lighting must be provided. Intrinsically safe equipment must be used unless the atmosphere has been declared safe as above.

Ventilation

Consider ventilation of the confined space, however a risk assessment of the dangers associated with ventilation must be carried out.

HAZARD 4

Oxygen deficiency of the atmosphere may lead to asphyxiation

LEVEL OF RISK 4

| | Slightly Harmful | Harmful | Extremely Harmful |
|-----------------|------------------|-------------|-------------------|
| Highly unlikely | Trivial | Tolerable | Moderate |
| Unlikely | Tolerable | Moderate | Substantial |
| Likely | Moderate | Substantial | Intolerable |

HAZARD 5

Solid materials which can flow, could submerge a person leading to asphyxiation.

LEVEL OF RISK 5

| | Slightly Harmful | Harmful | Extremely Harmful |
|-----------------|------------------|-------------|-------------------|
| Highly unlikely | Trivial | Tolerable | Moderate |
| Unlikely | Tolerable | Moderate | Substantial |
| Likely | Moderate | Substantial | Intolerable |

HAZARD 6

Presence of excessive heat causing an increase in core temperature of body leading to loss of consciousness.

LEVEL OF RISK 6

| | Slightly Harmful | Harmful | Extremely Harmful |
|-----------------|------------------|-------------|-------------------|
| Highly unlikely | Trivial | Tolerable | Moderate |
| Unlikely | Tolerable | Moderate | Substantial |
| Likely | Moderate | Substantial | Intolerable |

Additional Risk Control Measures

It is imperative to maintain the safe ingress and egress from the confined space at all times. When vertical access is used, suitable harnesses and safety lines must be provided for all personnel who enter the confined space, along with provision for emergency recovery of personnel. When a safety line and harness is used:

- secure free end of line to immovable object outside of confined space
- ensure the line is under the control of a competent person
- mark the line with a BA branchline tally, enter the number in the BA board remarks column

Appoint a designated safety officer to supervise the confined space aspects of the incident including the supervision of the entry point. (This officer may not be used for other tasks). There should be at least two persons outside of the confined space entry point, whilst personnel are inside.

Under certain circumstances (sewers, ships holds, etc) it may be impractical for personnel to remain attached to the safety line, the Dynamic Risk Assessment **must** therefore weigh the benefits of this action against the risk to personnel.

Consultation

Regulations define a process for industry to consult with the brigade during operations in confined spaces. Therefore the OIC should consider asking the occupier for a copy of their risk assessment.

Pre-determined attendance

The OIC should transmit "**confined space incident**" on all occasions personnel are required to enter confined spaces. The Brigades full Rope Rescue capability will then be mobilised

Incidents in pressurised workings

It should be noted that the contractor is primarily responsible for rescue and first aid in such workings. The Brigade will respond, but will normally only provide back-up and advice.

Overall risk assessment summary

| OVERALL ASSESSED RISK (BEFORE CONTROL MEASURES) | | | | | |
|---|---------|-----------|------------|-------------|-------------|
| ASSESSED RISK: | TRIVIAL | TOLERABLE | MODERATE | SUBSTANTIAL | INTOLERABLE |
| OVERALL ASSESSED RISK (AFTER CONTROL MEASURES) | | | | | |
| ASSESSED RISK: | TRIVIAL | TOLERABLE | MODERATE | SUBSTANTIAL | INTOLERABLE |
| REVIEW FREQUENCY | 3 YEARS | 2 YEARS | EVERY YEAR | IMMEDIATE | |

Aide Memoir

Initial

- ◆ Initiate a “*confined space incident*“ message to mobilise full PDA.
- ◆ Consult with person in charge of the workplace and ascertain:-
 - the type of incident
 - the type of atmosphere in the confined space, i.e. flammable, toxic, oxygen deficient etc
 - what the rescuer is likely to encounter at the base of the confined space, i.e. liquid, (corrosive) solid material which can flow, sludge (depth of material or liquid)
 - other hazards i.e. electricity, mechanical equipment, noise, asbestos etc
 - is it absolutely necessary for personnel to enter the confined space?

As the incident develops

- ◆ Restrict numbers of personnel in confined space to minimum
- ◆ Rescuers to be fully briefed before entry to confined space
- ◆ Breathing apparatus must be worn (with intrinsically safe communications) plus intrinsically safe torch
- ◆ Implement full breathing apparatus procedures. Adopt stage II as soon as is practicable
- ◆ Protect against contact with infectious materials eg within sewers
- ◆ If gas-tight suits are required, reassess situation, as full harnesses cannot be worn with GTS
- ◆ Carry out decontamination as necessary
- ◆ Where possible rescuers should remain attached to the safety line via their harness at all times
- ◆ Visual contact to be kept with rescuers where possible
- ◆ If working during the hours of darkness externally illuminate the entry point
- ◆ Additional safety line for the casualty
- ◆ Each line to be secured and supervised separately and identified by BA branch line tally
- ◆ Entry point to confined space must be continually supervised
- ◆ Oxygen resuscitation equipment should be immediately available for rescuers/casualties
- ◆ Ventilation of the confined space may affect flammability ranges of gases/vapours and disturb flammable dusts
- ◆ Isolate **non-essential** electrical supply and mechanical power
- ◆ Appoint safety officer
- ◆ Crew welfare: Relieve personnel at regular intervals, consider need for refreshment

Post incident

- ◆ Implement appropriate stage of Operational Debriefing and Reporting
- ◆ Notwithstanding the above did this Aide Memoir provide all the necessary prompts, if the answer is no, contact the Risk Assessment Team, (Operations Department)