

## **CORPORATE PROCEDURE**

### **CONFINED SPACES**

#### **1 Aims of the Procedure**

The aim of this procedure is to ensure that:

- Entry into confined spaces is avoided where possible.
- When entry into confined spaces is unavoidable, all hazards have been considered and there are sufficient safe systems of work and emergency arrangements in place that will reduce the risk of injury to the persons involved.
- Ensure compliance with relevant legislation.

#### **2 Responsibilities**

##### **2.1 Corporate Directors**

Corporate Directors shall be responsible for the overall implementation of this Corporate Procedure.

##### **2.2 Heads of Service**

Heads of Service shall be responsible for the day-to-day implementation of this Corporate Procedure and will ensure the provisions of resources commensurate to the level of risk are made available.

##### **2.3 Governing Bodies of Schools Maintained by Education Authority**

There is a shared overall responsibility for health, safety and welfare between the LEA, Governing Body and Headteachers.

##### **2.4 Managers/ Team Leaders/Headteachers**

Managers/ Team Leaders/ Headteachers are responsible for ensuring the implementation of this corporate procedure within their workplaces.

##### **2.5 Occupational Health Unit**

The Occupational Health Unit (OHU) shall conduct pre-employment and employment confined space screening for at risk groups. Screening shall be carried out annually following an initial baseline reading on recruitment or

commencement of duties in roles where they may be exposed to significant risks.

## **2.6 Corporate Health & Safety Section**

The Corporate Health & Safety Section shall provide advice and guidance on all operational concerns.

## **2.7 Employees**

Each employee of the Authority shall: -

- Take reasonable care to ensure their safety and that of others, and adhere to the NPTCBC procedures and guidance.
- Adhere to Risk Assessments ([CP/05/01](#)) carried out and control measures required to minimise risk.
- Inform their managers of any change in their health status which may be affected by confined space entry.
- Use appropriate controls where provided for a task in order to avoid or reduce the risks. The controls should be used in the manner in which the employee has been instructed and for its intended purpose.
- Co-operate with Managers / Team Leaders/ Headteachers to ensure they have attended the necessary training. Adhere to the information given and convey relevant information to other colleagues where necessary.
- The employee has the right to refuse to carry out (according to the Management of Health and Safety at Work Regulations (MHAWR)), a task where the potential risk of injury is likely and unreasonably high; and where the risk could reasonably and practicably be avoided by the provision of training, instruction, information, supervision and appropriate resources.
- Comply with the Authority's accident/incident reporting procedures in all cases involving injuries, incidents or near misses affecting themselves, other colleagues, service users or non-employees.

## **2.8 Definitions**

A Confined space can be any space of an enclosed nature where there is a risk of death or serious injury from hazardous substances or dangerous conditions (e.g. lack of oxygen).

Some confined spaces are fairly easy to identify, e.g.

- Enclosures with limited openings:

- Storage tanks;
- Silos;
- Reaction vessels;
- Enclosed drains;
- Sewers.

Others may be less obvious, but can be equally dangerous, e.g.

- Open-topped chambers;
- Vats;
- Combustion chambers in furnaces etc;
- Ductwork;
- Unventilated or poorly ventilated rooms.

It is not possible to provide a comprehensive list of confined spaces. Some places may become confined spaces when work is carried out, or during their construction, fabrication or subsequent modification.

### **3 Hazards**

Dangers can arise in confined spaces because of:

#### **3.1 Lack of oxygen.**

This can occur:

- Where there is a reaction between some soils and the oxygen in the atmosphere;
- Following the action of groundwater on chalk and limestone which can produce carbon dioxide and displace normal air;
- In freight containers, lorries etc as a result of the cargo reacting with oxygen inside the space;
- Inside steel tanks and vessels when rust forms.

#### **3.2 Poisonous gas, fumes or vapour.**

These can:

- Build-up in sewers and manholes and in pits connected to the system;

- Enter tanks or vessels from connecting pipes;
- Leak into trenches and pits in contaminated land, such as old refuse tips and old gas works.

### 3.3 Ingress of liquids and solids.

Liquids and solids can suddenly fill a space, or release gases into it, when disturbed. Free flowing solids such as sand can also partially solidify or 'bridge' which can collapse unexpectedly.

### 3.4 Fire and explosions

Fire and explosions may occur due to flammable vapour concentrations being within flammable range or excess oxygen being present in a sufficient concentration.

### 3.5 Residues.

Residues left in tanks, vessels etc, or remaining on internal surfaces can give off gas, fumes or vapour.

### 3.6 Dust.

Dust (especially organic materials) present in high concentrations may pose a risk of explosion.

### 3.7 Temperature.

Hot conditions or the wearing of personal protective equipment may lead to a dangerous increase in body temperature.

### 3.8 Mechanical and electrical isolations.

Mechanical and electrical isolations (**physical break**) may be necessary prior to entering a confined space to prevent inadvertent start up of equipment. Where this is necessary 'test starts' should always be carried out to demonstrate the isolation is effective.

### 3.9 Hazards arising out of work activity

Some of the above conditions may already be present in a confined space. However, some may arise through the work being carried out, or because of ineffective isolation of plant nearby, e.g. leakage from a pipe connected to the confined space. The enclosure and working space may increase other dangers arising through the work being carried out, for example:

- Machinery being used may require special precautions, such as provision of dust extraction for a portable grinder, or special precautions against electric shock or generation of sparks that may be a source of ignition.
- Gas, fumes or vapour can arise from welding, or by use of volatile and often flammable solvents from paints and adhesives etc.
- If access to the space is through a restricted entrance, such as a manhole, escape or rescue in an emergency will be more difficult. The safe system of work must include evacuation of personnel from such areas.

#### **4.0 Risk Assessment.**

The main emphasis throughout the confined spaces regulations is that entry must be avoided if it is reasonably practicable to undertake the work from outside the confined space.

Where this is not possible a risk assessment and a written safe system of work shall be carried out and appropriate precautions must be adhered to.

***\* Streetcare – The Drainage Team of the Highways Section will continue to work to the Environment Directorate’s ‘Code of Practice for Working in Confined Spaces’***

Prior to entry a risk assessment must be undertaken and recorded in line with the Corporate Risk Assessment Form [CF/04/02](#). The assessment must consider whether the confined space entry can be avoided in the first instance. Where entry cannot be avoided, then all hazards and risks detailed in Section 3 above must be considered. Note: this list is not exhaustive and other additional risks may have to be considered.

#### **4.1 Safe systems of work**

A safe system of work shall be written for all confined space entries. To be effective, a safe system of work needs to be in writing (*ACoP requirement*). It is the responsibility of Section Managers and Supervisors to ensure that this requirement is fulfilled. The typical components of a safe system of work are detailed in sections 4.1.1 to 4.1.14.

##### **4.1.1 Appointment of supervisor**

Supervisors must be appointed to oversee all confined space work. It is their responsibility to ensure all the necessary precautions are taken and that a safe system of work is being followed. It is the responsibility of Section Managers to appoint a suitably trained and experienced supervisor.

The degree of supervision will be based on the findings of the risk assessment. In some cases periodic checks may be sufficient, if the work is low risk, routine, the precautions straightforward and can be properly controlled by the person carrying out the work.

It is more likely that the level of risk will require a competent person to supervise the work and remain present while the work is being undertaken.

#### 4.1.2 Competence

Specific training for work in confined spaces is required for all personnel involved in this type of work. The training will include topics such as:

- Awareness of the Confined Spaces Regulations and in particular the need to avoid entry where possible.
- An understanding of the work to be undertaken, the hazards, the safe system of work and all necessary precautions.
- An understanding of the 'permit to work' (where applicable) systems.
- How emergencies arise, the need to follow prepared emergency plans and the dangers of not doing so.

#### 4.1.3 Communications

Where identified adequate communication systems are required to enable:

- Communication between people inside and people outside the confined space.
- Help to be summoned in an emergency.
- Emergency rescue procedures to be initiated.

Systems can include speech, tugs on a rope, telephones, radios etc. Equipment to be used in potentially flammable or explosive atmospheres should be specially protected so they do not present a source of ignition.

#### 4.1.4 Testing the air and provision of ventilation.

The risk assessment may highlight a need to check that the atmosphere is free from both toxic and flammable vapours and that there is an adequate concentration of oxygen prior to entry. A competent person using a suitable gas detector, which is correctly calibrated, must carry out testing. Where the risk assessment indicates that conditions may change, or as a further precaution, continuous monitoring of the air may be necessary.

**Note:** The acceptable oxygen concentration range is between 19.5% and 21%. Work must not be undertaken if the oxygen concentration is outside this range.

It is the responsibility of the supervisor to ensure that air-testing requirements identified by the risk assessment are carried out by a competent person, who is trained in the use of the equipment and can interpret results.

Ventilation may be improved by increasing the number of openings, however, mechanical forced ventilation may be necessary to ensure an adequate supply of fresh air. If this is the case, then continuous monitoring is required. Fresh air should be drawn from a point where it is not contaminated either by used air or other contaminants.

Use of portable gas cylinders and diesel equipment should be avoided where possible. If their use cannot be avoided, then forced ventilation is essential to prevent the accumulation of gases/fumes.

**Warning:** carbon monoxide in the exhaust from petrol-fuelled engines is so dangerous that use of such equipment in confined spaces must **never** be allowed.

#### 4.1.5 Decontamination before entry.

It is essential to ensure fumes do not develop from residues etc while the work is being done. All decontamination requirements must be carried out and the atmosphere tested prior to work starting. It is the responsibility of the supervisor to ensure effective decontamination is carried out.

#### 4.1.6 Isolation from gases, liquids and other flowing materials.

Confined spaces will often need to be isolated from ingress of substances that could pose a risk to those working within the space. Methods of isolation may include:

- Complete disconnection of pipes or ducts.
- Insertion of blanks.
- Reliable valves that can be locked shut.

Whatever means of isolation is used, it needs to be tested to ensure it is suitably reliable. It is the responsibility of the supervisor to ensure that all necessary isolations have been made and are effective.

#### 4.1.7 Isolation from mechanical and electrical equipment

Mechanical and electrical isolation of equipment is essential if it could otherwise operate, or be operated, inadvertently. It is the responsibility of the

supervisor to ensure that all necessary mechanical and electrical isolations have been made and are effective.

#### 4.1.8 Use of suitable equipment

Any equipment provided for use in a confined space needs to be suitable for the purpose. Consideration should be given to:

- Likelihood of flammable atmospheres and sources of ignition.
- Emissions of fumes/gases.
- Risk of electrocution.
- Earthing requirements with regard to static electricity.
- Mechanical hazards (e.g. trapping, falling, shearing etc).

#### 4.1.9 Personal Protective Equipment (PPE) and Respiratory Protective Equipment (RPE)

Ideally the need to wear PPE or use RPE should be eliminated by implementation of robust risk control measures. It should only be used by a suitably trained person as a last resort. If the use of PPE or RPE is necessary, then it must be assessed for suitability by a competent person and offer the correct level of protection.

**Note:** wearing PPE and RPE can contribute to heat stress.

#### 4.1.10 Size of entrance

The access/egress point must be big enough to allow workers wearing all the necessary equipment to climb in and out easily, and provide ready access and egress in an emergency.

#### 4.1.11 Fire Prevention

Flammable and combustible materials must not be stored in confined spaces that have not been specifically created or allocated for that purpose. If this type of material is used during work it must be kept to a minimum and not be allowed to accumulate. Control of ignition sources and ventilation requirements must also be considered. Smoking must be prohibited from all confined spaces, it may be necessary to extend the exclusion area to a distance beyond the confined space

#### 4.1.12 Lighting

Adequate and suitable lighting, including emergency lighting should be provided. The lighting must be specially protected where flammable/explosive



atmospheres are likely to occur. Lighting may need to be protected from knocks and be suitable for use in wet environments. Where possible, residual current devices should be utilised to protect against electric shock.

#### 4.1.13 Suitability of persons

Those persons required to enter confined spaces must be mentally suitable (e.g. not claustrophobic), physically fit, have received training in the hazards presented by confined spaces and the procedures to be followed. In addition, prior to entry to any particular confined space, persons entering must be instructed by the area supervisor in the specific hazards and precautions applying, and where applicable a confined space rescue plan. All Confined Spaces training must be recorded. When limiting the working time, consideration should be given to temperature, humidity, restricted movement, the need to wear PPE/RPE etc. It is the responsibility of Section Managers to ensure only suitable persons are selected for confined space work.

#### 4.1.14 Emergency Arrangements

Where applicable confined space work must not be undertaken unless there are emergency plans in place for the rescue of persons in an emergency. Account needs to be taken not only of accidents arising out of specified risks, but also any other accident in which a person may need to be recovered.

To be suitable and sufficient the arrangements for rescue should include consideration of:

- Rescue and resuscitation equipment
- Raising the alarm and rescue.
- Safeguarding the rescuer
- Fire safety
- Control of plant.
- First aid.
- Public emergency services.
- Training.

It is the responsibility of Section Managers to ensure an assessment of the emergency requirements has been made. It is the supervisor's responsibility to ensure any measures deemed necessary are in place and tested prior to any confined space entry.