BBC Studioworks

# Confined Space Policy – Television Centre

TVC Procedure

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## 1.0 Introduction

Confined spaces can be deadly. On average, work in confined spaces kills 15 people every year in the UK across a wide range of industries, from those involving complex plant through to simple storage vessels and rooms. In addition, a number of people are seriously injured. Those killed include not only people working in the confined space but those who try to rescue them without proper training and equipment.

A confined space is defined as a place which is substantially enclosed (though not always entirely), and where significant injury can occur from hazardous substances or conditions within the space or nearby (e.g. lack of oxygen, lack of access etc.).

## 2.0 Scope

This policy applies to all confined spaces within Television Centre (TVC) that pose a risk to employees, visitors, contractors, production companies and members of the public.

## 3.0 Purpose

The purpose of this policy 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.

## 4.0 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;
- Enclosed drains and sewers.

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

- Open-topped chambers;
- Paint wells;
- Combustion chambers in furnaces etc;

- Ductwork;
- Unventilated or poorly ventilated rooms.

One confined space, specific to Television Centre, is the 'Undercroft' – a reduced height area the spans across the whole of the lower ground floor. It contains drainage systems including pipework and pumps where access is required in order to carry out maintenance and remedial works. There is no lighting and access is limited via access doors in plant rooms and floor hatches on the lower ground floor. It is a highly restricted area, with only authorised persons allowed under the permit to work system.

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.

**5.0 Legal requirements**

5.1 Management of Health and Safety at Work Regulations.

A suitable and sufficient assessment of the risks for all work activities is required for the purpose of deciding what measures are necessary to ensure safety.

5.2 Confined Spaces Regulations

These regulations contain the following key duties:

- Avoid entry to a confined space where possible.
- If entry is unavoidable, follow a written safe system of work.
- Put in place adequate emergency arrangement before the work starts.

**6.0 Hazards**

Dangers can arise in confined spaces because of:

6.1 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;
- When using inert gases, for example, during some welding operations.

6.2 Poisonous gas, fume 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.

6.3 Ingress of liquids and solids

Liquids and solids, which can suddenly fill the space, or release gases into it, when disturbed. Free flowing solids such as grain can also partially solidify or 'bridge' in silos causing blockages, which can collapse unexpectedly.

6.4 Fire and explosions

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

6.5 Residues

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

6.6 Dust

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

6.7 Temperature

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

6.8 Mechanical and electrical isolations.

Mechanical/electrical isolations and 'lock off' systems 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.

6.9 Hazards arising out of work activity

Some of the above conditions may already be present in the confined space. However, some may arise through the work being carried out, or because of ineffective isolation of plant nearby, e.g. leakage from pipework, ducting or other ancillary equipment 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 exhaust/dust extraction, or special precautions against electric shock and generation of sparks that may be a source of ignition;
- Gas, fume or vapour can arise from welding, or by use of volatile and flammable solvents from paints and adhesives etc. It may be necessary to mechanically ventilate the confined space;
- If access to the space is through a restricted entrance, such as a manhole, escape or rescue in an emergency will be more difficult (see Emergency procedures).

**7.0 Procedure**

7.1 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 must be made and appropriate precautions must be taken to mitigate any hazards identified. For confined spaces that are entered regularly, it is appropriate to have a written procedure.

Prior to entry a risk assessment must be undertaken and recorded in line with the Risk Assessment Procedure. 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 6.0 must be considered. Note: this list is not exhaustive and other additional risks may have to be considered.

7.2 Safe systems of work

It is a requirement of the Confined Spaces Regulations that there is a safe system of work for all confined space entries. To be effective, a safe system of work needs to be in writing (*Approved Code of Practice requirement*). The typical components of a safe system of work are detailed in sections 7.2.1 to 7.2.15.

7.2.1 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 the safe system of work is being followed. It is the responsibility of the contractor 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 and routine.

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.

7.2.2 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' and the 'permit to enter' systems;
- How emergencies arise, the need to follow prepared emergency plans and the dangers of not doing so.

7.2.3 Communications

An adequate communication system is 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.

7.2.4 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. Test results must be recorded on the permit to enter.

**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.

7.2.5 Decontamination before entry.

It is essential 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.

7.2.6 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.

7.2.7 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 (including lock-off of isolation switches) have been made and are effective.

7.2.8 Use of suitable equipment

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

7.2.9 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 as a last resort, except for rescue work. 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.

7.2.10 Gas supplied by pipes and hoses.

The use of pipes and hoses for conveying oxygen or flammable gases into confined spaces must be controlled to minimise the risk.

At the end of every working period:

- Supply valves for pipes and hoses must be securely closed.
- Pipes and hoses must be withdrawn from the confined space to a well-ventilated area.
- Where pipes and hoses cannot be removed, they must be disconnected from the supply at a point outside the confined space.

7.2.11 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.

7.2.12 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 is prohibited in all confined spaces, it may be necessary to extend this exclusion area to a distance beyond the confined space

7.2.13 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 impacts and be suitable for use in wet environments. Where possible, residual current devices should be utilised to protect against electric shock.

7.2.14 Permit to Enter a Confined Space

Permission to enter a confined space can only be given by a person who has received appropriate training and is authorised to sign a Confined Space Permit. The permit must be signed in the authorisation and acceptance section prior to work starting by a competent person and authorised person from TVC. A hand-back signature must also be completed on the permit when to work is complete or the expiry time exceeded.

7.2.15 Suitability of persons

Those persons required to enter confined spaces must by mentally suitable (e.g. not claustrophobic), physically fit, have received general 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 in the 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 the authorised senior person from facilities to ensure only suitable persons are selected for confined space work.

**8.0 Emergency Arrangements**

No confined space work must 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;
- Raining the alarm and rescue;
- Safeguarding the rescuer;
- Fire safety;
- Control of plant;
- First aid;
- Public emergency services;
- Training.

It is the responsibility of the relevant authorised senior facilities manager 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.