## Definitions

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<th>Term</th>
<th>Definition</th>
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<tr>
<td>Manager</td>
<td>A person who has responsibility for confined spaces and those people selected to work in confined spaces and <strong>is suitably trained and formally assessed in confined space management.</strong> He/she has the authority and responsibility to appoint persons to the specific roles.</td>
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<tr>
<td>CPI</td>
<td><em>(Competent Person Level 1)</em> A person who has successfully completed the training and assessment for working in and escaping from confined spaces and has been appointed by their line manager as being competent. CP1 can only work in confined spaces under supervision of a CP2.</td>
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<tr>
<td>CP2</td>
<td><em>(Competent Person Level 2)</em> A person who has successfully completed the training and been formally assessed as suitably competent for working and carrying out emergency rescues, has been appointed by their manager as being competent.</td>
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<tr>
<td>CP2 (in charge)</td>
<td><strong>A CP2 in charge</strong> A person who has been trained, assessed and formally appointed, has the required knowledge and experience. Is nominated to lead a rescue in the case of an emergency.</td>
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<tr>
<td>Top-man</td>
<td>A top man is one who has been trained to CP2 standard, has experience of working in confined spaces and has been assessed and formally appointed to discharge those duties.</td>
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<tr>
<td>Appointed Person (c)</td>
<td>A person who has been mentored to the role of AP(C) and has been formally assessed and appointed by the relevant manager.</td>
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<td>Appointment</td>
<td>Formal written appointment.</td>
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<td>Visitor</td>
<td>Any person who has not been trained to CPI or CP2 standard.</td>
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Introduction

Regulation 4 of the Confined Space Regulations states that:

“A person at work shall not enter a confined space to carry out work for any purpose unless it is not reasonably practicable to achieve that purpose without such entry”

Confined space working is a high risk activity but with the right controls in place will become low risk.

A team were asked to clean out a tank. They all had the appropriate level of competence and were medically fit on the day of the job.

A risk assessment had been developed for the job taking account of the history of the tank and the likely hazards to be encountered. A full briefing on the system of work was provided. All equipment needed was available, in date and good working order and each man understood the role they had.

The working team entered the confined space, looking out for each other, monitoring the atmosphere, maintaining communication with the safety team at the top.

They undertook the job, exited the confined space, cleaned up and left the site in a secure state. All those involved in the job went home safe at the end of the day.

Incidents are thankfully rare occurrences, but when they do happen, they normally result in fatality and will more often than not, involve more than one person.

The risks involved in working in confined spaces are significantly more hazardous than normal workplaces. The hazards may not be unique to confined spaces but are always worsened by the enclosed nature of the working area. A seemingly insignificant error or oversight can result in a tragic incident.

Effectively managed, planned and controlled, no confined space entry should expose individuals to foreseeable risk and all who enter will go home safe and well at the end of every working day.
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Confined Space

The term confined space is used widely throughout industry. In general terms, a confined space will be identified by its enclosed nature TOGETHER with a specified risk being either inherent due to the working area (i.e. hydrogen sulphide, methane, chemicals) or introduced (i.e. solvents, hot work) – these are known as specified risks.

The HSE define specified risks as:
• Loss of consciousness caused by gases, vapours, fumes or lack of oxygen
• Loss of consciousness caused by an increase in body temperature
• Serious injury from fire or explosion
• Drowning from an increase in the level of liquid
• Asphyxiation caused by a free flowing solid or inability to reach a respirable environment due to entrapment by a free flowing solid

The following flow chart can help managers with the decision making process. In order for an area to be deemed a confined space, there must be at least one of the above specified risks present or reasonably foreseeable to make any enclosed space a confined space.

Is the space substantially or partially enclosed?

No

This space is not confined under the regulations

Yes

Is there one or more of the specified risks present?

No

This is not a confined space under the regulations

Yes

This is a confined space and subject to the regulations

Will the work introduce one of more of the specified risks?

No

This space is not confined under the regulations

Yes

This is a confined space and subject to the regulations as long as the work is being carried out and any residual risk remains.
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Restricted Spaces

A restricted space can be best described as an area with no inherent or introduced specified risks, small in construction, making movement and access and egress difficult.

Examples of this may include:

- Roof spaces (building voids)
- Cellars
- Inspection pit
- Plant rooms
- Generator rooms
- Ducts

*This list is not exhaustive

Enclosed Spaces

An enclosed space is an area which is fully or substantially enclosed BUT no specified risk (as defined above) exists. They have limited openings for entry and exit, limited or no natural ventilation and are not designed to be occupied on a continual basis.

Examples of these may include:

- Service reservoirs
- Dry wells (not sharing the atmosphere of a wet well)
- Pumping stations (under normal operational conditions)
- Ring main shafts (under normal operational conditions)
- Fuel tanks
- Cofferdams

The most common cause of incident in an enclosed space is physical injury (e.g. slips, trips and falls) resulting in inability to easily extract a casualty. Although you may not need a full rescue team for enclosed space working, arrangements for extraction of a casualty must be considered at the planning stage.

In any enclosed space, as soon as intrusive maintenance, repair or change to the environment occurs, it will be necessary to re-assess as a confined space.
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Relevant Risks

The risks which need to be considered are those which, arising in combination with the enclosed nature of the working space, could lead to a risk of serious injury or harm, necessitating emergency action. These may be existing or foreseeable.

Atmospheric Risks

Hazardous atmospheres can be divided into four distinct categories:

- Flammable
- Toxic
- Irritant and/or corrosive
- Asphyxiating

A toxic atmosphere can cause various acute effects including impaired judgement, unconsciousness and unfortunately death. It may occur in the confined space due to the presence or ingress of hazardous substances. These substances may be residue or be present as a result of previous storage or arise from the disturbance of sludge. Hazardous substances may also enter a confined space from adjoining plant that has been inadequately isolated. Gases and fumes can build up over time in or can travel along sewers, cable tunnels or culverts. They may be produced by work processes being carried out inside the confined space e.g. welding, flame cutting or use of machinery.

The key when planning confined space working is to look at previous contents, the history of the confined space, any previous incidents involving gas alarms or known problems and of course, talking to employees who have local knowledge. COSHH data sheets/risk assessments must be consulted before considering the use or introduction of substances.
A deficiency of oxygen in the atmosphere can result in impaired judgement, unconsciousness and ultimately death. It can be caused by displacement of air by another gas or various biological processes or chemical reactions (e.g. rusting of metal, rotting of organic matter, burning) which scavenge or consume oxygen from air. Oxygen can also be removed from the air by absorption onto steel surfaces, especially where these are damp.

An oxygen deficient atmosphere can arise in several circumstances:

Contaminated soil is a microbiological decay of organic matter which can take up oxygen in the air and surrounding soil leaving a nitrogen gas mixture deficient in oxygen and rich in carbon dioxide. This mixture can seep into tunnels or deep excavations being made in contaminated ground.

Sewerage can give rise to oxygen deficiency from the absorption or chemical depletion of oxygen in the air by organic matter.

Acidic Water and Chalk can result in carbon dioxide displacing oxygen in the area and creating an oxygen-deficient atmosphere.

It has been clearly established that risks can arise when working in confined spaces due to the presence of toxic gases, flammable gases, oxygen enrichment or oxygen deficiency.

Two key strategies that can be applied are:

- **Purging** of the area by an inert gas to drive out any flammable or toxic gases followed by replacement with respirable air
- **Introduction of exhaust ventilation** of the work area to remove further build-up of gases

Fresh air may be suitable as a purging medium (but not, however, in relation to purging out flammable or explosive gases) and is required to replace any air that has been drawn out by ventilation systems.

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**OXYGEN SCALE**

- **6%** Difficulty breathing, death in minutes
- **14%** Faulty judgement, rapid fatigue
- **19.5%** Minimum for safe entry
- **23.5%** Oxygen enriched, extreme fire hazard
- **16%** Impaired judgement, and breathing
- **21%** Normal
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Clearly to ensure that a supply of fresh or purified air is provided at the workplace, testing of the atmosphere must take place before workers are permitted to enter the space. The employer is also required to make an assessment of the risks that are involved from exposure to hazardous substances and then to provide adequate controls to deal with the risks. Particular care is necessary when some dense asphyxiates may be present (e.g. Hydrogen Sulphide (H2S), since these will accumulate in low lying areas.

To deal adequately with the risks and to provide compliance with the law, it is essential to establish detailed safe systems of work that can be applied to individual circumstances arising from work in the confined space.

**Oxygen Enrichment**

An excess of oxygen in the atmosphere in the presence of combustible material results in an increased risk of fire or explosion. Oxygen enrichment, even by a few percent, considerably increases the risk of fire. Materials that do not ordinarily burn in air may burn vigorously in an oxygen enriched atmosphere. You may encounter high oxygen content during work activities such as welding, flame cutting, steel works, chemical plant areas and other similar processes. Other examples include trade effluent intakes, hydrogen peroxide dosing or liquid oxygen plant.

**Flammable And/Or Explosive Atmospheres**

A flammable atmosphere presents a risk of fire or explosion. Such atmospheres can arise from the presence of liquids, gases, suspension of combustible dust in the air or an oxygen enriched atmosphere. If ignition does occur an explosion may result in the expulsion of hot gases and the disintegration of a structure.

Consideration must be given to the plant, tools, equipment and clothing materials used in while working in the confined space where flammable or explosive atmospheres may be present. All work of this nature must be planned with the relevant health, safety & wellbeing adviser.

**Free Flowing Solids**

Free flowing solids can be found in several areas, including silo’s, vats, tanks, excavations etc. Becoming trapped in a flowing solid can result in respiratory difficulties and in the worst case, death due to organs being unable to function appropriately.
Excessive Heat

The enclosed nature of a confined space can lead to a dangerous rise in core body temperature and can be made worse as a result of personal protective equipment being worn. A slower heat build-up in the body can cause heat stress, and if action is not taken to cool the body there is also a risk of heat stroke and unconsciousness. This can occur where work in hot conditions is being undertaken in a confined space or where, for example, boilers or furnaces have not been allowed sufficient time to cool before people are allowed to enter to undertake maintenance work.

Weather conditions, appropriate PPE and additional ventilation should be taken into account when planning any confined space work.

Preventing The Need For Entry

Regulation 4 of the Confined Space Regulations states that:

“A person at work shall not enter a confined space to carry out work for any purpose unless it is not reasonably practicable to achieve that purpose without such entry”

Although every effort should be made to avoid the need for entry (which should be considered during the design phase) there will be some instances where this is not achievable (i.e. old plant, processes etc). Therefore, if the work requires man entry into a confined space special consideration should be given to the choice of work method, the access/egress arrangements, and emergency procedures.

Where it is deemed necessary to commit people to work in a confined space, it is essential that the atmosphere within the space is monitored for at least five minutes (at the bottom of the entry point) to test that it is safe to enter.
Choice Of Work Method

In some cases you can clean a confined space, or remove residues from the outside using water jetting, steam or chemical cleaning, long-handled tools or in-place cleaning systems. Blockages can be cleared in silos where grain or other solids can ‘bridge’ or where voids can form, by the use of remotely-operated rotating flail devices, vibrators and air purgers which avoid the need to enter the space.

In some cases it is possible to see what is happening inside by looking in through a porthole, sight-glass, grille or hole. If the sight-glass tends to become blocked, it can be cleaned with a wiper and washer.

Lighting can be provided inside or by shining portable lamps in through a window. The use of closed circuit television systems (CCTV) may be appropriate in some cases. If lighting is being considered, then the appropriate Ex rated tools must be provided where risk of fire or explosion exits.

All tools (fixed or portable) should be approved for work in confined spaces or hazardous areas and be ATEX (ATmosphere EXPlosibles) or EX (Explosion) rated. For further guidance, contact the relevant safety adviser.

Prevention Of Unauthorised Entry

It is the responsibility of the site controller/manager to ensure that all reasonably practicable measures are taken to prevent unauthorised entry/access to confined spaces. Measures should include induction for any contractors working on sites or assets, visitors to site, new and existing employees, and all steps must be taken to ensure the security of sites to prevent trespass. Appropriate signage to warn of the dangers and restrictions on entry must be in place.

Physical barriers must be in place for all work being carried out off site to protect members of the public straying into hazardous areas.
Risk Assessments

Specific Risk Assessment/SSOW

Before carrying out any work in a confined space, a risk assessment is necessary to determine the measures that must be taken to ensure the safety, health and wellbeing of those entering and working in the confined space.

The risk assessment should identify the relevant hazards/risks and will help to formulate a safe system of work. It will also determine the manning levels, competency requirements and emergency arrangements which must be in place prior to any entry.

The risk assessment must evaluate the risks to those entering or working in the confined space, other workers (e.g. contractors) and the general public in the vicinity. Other hazards must be taken into account e.g. working from height, possible contact with moving machinery, live electrical equipment etc. If in any doubt or clarification is required, seek guidance from your safety adviser.

Risk Assessment

The risk assessment must be suitable for the work being undertaken out and specific to the location. A standard method of entry can be developed to accompany the risk assessment but in all non-standard entries (e.g. Class C sewer, ozone tanks, hot work, tumbling bays, split level entries) there must be a safe system of work developed by a competent person.

Reviews of risk assessments and safe systems must be carried out periodically or after any incident or changes in legislation.

What’s Inside

The general state of the confined space should be assessed to identify what substances or conditions might be present and could cause an issue. For example, is the concentration of oxygen normal? Can information or experience from employees who may be familiar with the particular workplace be obtained? What information is available from records, drawings or design data?

The physical dimensions, structure and layout of the confined space can result in air quality differences within the space which may necessitate the provision of mechanical ventilation. There may also be areas with increased risk of engulfment by free flowing solids or liquids. What temperature, air humidity and visibility is likely to be encountered?
In identifying hazards and assessing risks, the following should be considered:

**Contents**
If the confined space is not empty, what substances are present and what are the associated hazards? Can gases be released from the contents by biological or chemical processes; for example, methane or hydrogen sulphide from decaying organic matter or carbon dioxide from fermenting matter? Can gases leach from the contents, for example, methane from groundwater? Is engulfment possible; for example by a water surge in a sewer following heavy rainfall? Trade effluent (industrial) discharges must also be considered.

**Previous contents**
Information about the substances previously held, stored or used in the confined space will give an indication of what kind of hazard may be encountered, for example toxic or flammable gases, fuel, sewage.

**Residues**
Dangers may arise from chemical residues or scale, rust, sludge or other residues in a confined space. Dangerous fume or vapour can be released when scale, sludge or slurry is disturbed.

**Contamination**
Unexpected contamination from leaking gases or liquids may arise from adjacent plant, processes, gas mains. Equally, contaminated ground could give rise to pockets of gas being present and this should always be a consideration during excavation.

**De-Classification**
In some circumstances (e.g. cleaned/purged digesters, service tunnels) it may be necessary to apply a temporary declassification. This will only be appropriate if:

- No actual or potential atmospheric hazards exist
- All other hazards associated with the work area can be eliminated for the duration of the entry

If these conditions are not met before entry, it must be treated as a confined space and relevant working procedures must be followed. Only those specifically trained to Senior Atmospheric Tester standard are authorised to de-classify confined spaces and authorised to issue the atmospheric test clearance certificate.
Methods of communication must be determined at the planning stage of any confined space entry and should take account of:

- Between those inside the confined space
- Between those inside and those outside of the confined space; and
- To summon help in an emergency

Whatever system is used, and it can be based on speech, tugs on a rope, telephone radio, all messages should be able to be communicated easily, rapidly and everyone involved in the entry must understand the system.

Communication systems should also cover the need for those outside the space to raise the alarm and set emergency procedures in motion.

Equipment such as telephones and radios should be specially protected so that it does not present a source of ignition where there is a risk of flammable or potentially flammable atmospheres.

Roles & Responsibilities

Managers Are Responsible For

Identifying and controlling the risks of each confined space in their area of control and ensuring:

- All confined space personnel have had the required medical clearance
- Face fit testing is undertaken and continuous monitoring is carried out
- Employees have received related training to ensure safety and health (i.e. working at heights, manual handling etc.)
- Operators have been identified and received the appropriate level of training
- Operatives have been assessed, appointed in writing and briefings carried out
- All employees are aware of both the hazards and risks
- Manning levels have been properly calculated and made available
- All safety equipment is available, in good working order and a continuous maintenance programme is in place
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Team Leaders/Supervisors Are Responsible For

Ensuring that they select only those people who are fit, trained and competent to work in confined spaces, also ensuring that:

- Operatives are medically fit on the day of the planned entry (colds, respiratory illness can affect a person’s ability to wear breathing apparatus)
- Employees are fully briefed on and understand the risks and controls
- All safety equipment is inspected, calibrated, tested and available in good working order
- All entry documentation is completed
- All permit documentation has been agreed, issued and communicated
- Periodic inspections are carried out on confined space entry activities
- A zero compromise approach to all planning and undertaking confined space entries
- Ensure employees have undertaken an appropriate face fit test.

Operatives

Operatives working in confined spaces must ensure that all aspects of any entry are understood and approached with care, raising any issues with Team Leaders or managers, also ensuring that:

- Appropriate and valid training and appointment has been achieved
- Appropriate medical clearance has been confirmed either by self-assessment or medical appointment (dependant on level of qualification)
- Any medical concerns on the day of entry must be reported to their manager
- Company weight limit must be adhered to and continuously monitored
- All safety critical equipment is checked before entry is attempted
- Permits and authorisations have been briefed and understood where appropriate
- Briefings have taken place on the mode of entry and team responsibilities
- Report any issue that may affect the safety of self or others
- Zero compromise approach to all confined space work
- Ensure a valid face fit test is in place
Duty Holders

Top Man

Character
- Confident
- Competent in the area of confined space working (completed and passed the CP2 course - minimum)
- Excellent communication and organisational skills
- Ability to maintain calm under pressure
- Ability to identify faults on equipment
- Understanding of this critical role
- Can read and interpret work instruction/risk assessment/safe systems
- Understanding of the wider work area hazards
- Zero compromise approach

Role/Duties
- Assemble. Brief and deploy staff
- Establish and maintain safety zones
- Establish both on and off site communications
- Establish control systems required by the risk assessment
- Ensure all entry personnel are provided with and are wearing the correct level of PPE/RPE
- Direct and control all entries into confined spaces
- Control work within risk assessment/safe system of work
- Recover entrants and instigate hygiene procedures
- Close down safety zone and the confined space
- Instigate emergency procedures (if required)
- In the event of an emergency - contact emergency services and preserve scene for investigation
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Authorised Person – Confined Spaces (APC Permit Issuer)

Character

• A Team Manager or above
• Must have attended the CPI training course as a pre-requisite
• Knowledgeable, Experienced, Practical & trained
• Good communicator
• Authoritative, challenging, and not easily swayed
• Familiar with geographical area of responsibility
• Uncompromising
• Attention to detail
• Does not waiver under pressure
• Understanding of surrounding areas of entry
• Excellent skills in assessing risk
• Zero compromise approach

Duties/Role

• Fully conversant with the TW confined space procedures and systems
• To oversee and authorise confined work in accordance with TW policy and procedures
• Developing specific risk assessments in conjunction with the CP2 (in charge)
• Review all confined space working and determine the appropriate level of entry
• Identify manning level requirements for each level of entry
• Develop and produce safe system of work for working in complex confined spaces.
• Ensure that all relevant employees are medically fit and have the correct training for the class of entry and training is current
• Issue, cancel and/or withdraw permits as appropriate
• Ensure that all persons working in confined spaces comply with the confined space class of entry
• Undertake regular inspections of confined spaces
• An understanding any impact on the permit being issued (i.e. diversions, delivery’s Class C sewers etc)
CP2 In Charge

Note: The role of the CP2 in charge must not be undertaken by the AP(C) (permit issuer) whilst they are working in the capacity of Authorised Person.

Appointment to this role will be made by site/area manager, if not competent in confined space operations, contact your local safety adviser.

Character

• Knowledgeable, experienced, practical & fully trained
• Good communicator
• Authoritative, challenging, and not easily swayed
• Familiar with geographical area of responsibility
• Medically/physically fit
• Zero compromise approach

Duties / Role

• A good understanding of TW confined space policy
• Fully conversant with TW procedures and systems
• Fully conversant with TW entry procedures and safe systems of work as required
• Ensure that all relevant employees are medically fit to enter and work in confined spaces
• The correct training for the class of entry and training is current
• Understand and accept permits to work
• Ensure appropriate emergency procedures are in place
• Ensure all necessary safety equipment is available, inspected and in date
• Ensure all members of the work team comply with the conditions set out in the entry procedure and/or the safe system of work
• Ensure that only work agreed is carried out
• Stop work and withdraw personnel and equipment etc, if for any reason the conditions of the confined space change and/or the agreed procedure or permit to work cannot be met
• Report to the manager/Authorised Person any incident, dangerous occurrence*, defects or other exceptional incidents occurring during the work in confined spaces
• Always be present at the site/confined space whilst work is being carried out
• Responsible for ensuring weight limit for confined space working is maintained

*a dangerous occurrence includes the failure of lifting equipment, fire or explosion, failure during testing or use of breathing apparatus, failure of pipeline. For full details of dangerous occurrences, please refer to HSE document - Reporting of injuries, diseases or dangerous occurrences (RIDDOR) 2013.
Emergency Rescue Personnel

All of those required to be a part of a rescue team must have been trained and assessed to CP2 standard.

Character

• Medically, physically fit
• Good communicator
• Ability to stay calm in all situations
• Competent in the use of all equipment
• Desire to help and support others
• Zero compromise approach

Duties / Role

• Own equipment, prepped, tested and ready
• Oxygen resuscitation & first aid equipment available, prepped and ready
• Ensure all PPE is available
• Assess access and egress
• Familiar with layout of confined space
• Assist top man/CP2 in charge in site set up and close down – where appropriate
• Competent to administer First Aid (inc oxygen resuscitation)
• Takes control in emergency situation
• Liaise with emergency services as necessary
• Responsible for ensuring own weight limit for confined space working is not exceeded

Senior Atmospheric Tester (SAT)

There are three strands to atmospheric testing above that which is carried out by entry teams.

• To test complex atmospheres in both clean and waste water
• Limited remit (one specific work activity i.e. Sludge Powered Generation)
• Gas systems

Each of these will require an SAT with a specific set of skills in order to effectively undertake the role. Consideration, when appointing persons to the role of SAT must be given to the technical knowledge of that person (i.e. an understanding of how different gases would react under differing circumstances) in order for managers to be confident of the safety of all entering under a permit and atmospheric test certificates.

Character

• Can demonstrate a full understanding of the risks and hazards associated with confined space working
• Fully understands of the importance of testing and documentation
Where an employee successfully completes confined space related training, the line manager will appoint them to a particular role (CP1, CP2, CP2 in charge etc). The manager must satisfy him/herself that the appointee has not only reached the required level through training but demonstrates a level of understanding and confidence to take on the responsibilities of the role they are being appointed to.

This appointment must be made in writing by the line manager using the standard appointment letter and their Local Organisation and Arrangement Document (LOAD) updated to reflect the appointment.

- Ability to challenge contractors/managers when under pressure to complete a job
- Confidence to say no and stop a job when the working arrangements are not up to the required standards
- Good working knowledge of confined spaces
- Take responsibility based on their good technical knowledge regarding properties of gases and how they react in different atmospheres
- Ability to work towards improving the atmospheric conditions.
- Zero compromise approach

Duties/role

The Senior Atmospheric Tester:

- Will work with the APC (permit issuer) and CP2 (in charge) to develop the safe system of work whilst ensuring that atmospheric conditions are controlled such that risk is minimised to an acceptable level for working
- Must not be the same person as the permit issuer on the same activity
- Will ensure that the test clearance certificate is completed appropriately, checked and remains in place for duration of the activity
- Will ensure that for the duration of the certificate issue, the atmosphere is monitored on a regular basis with readings recorded on the clearance certificate

Appointed Persons
Pre-Qualifications For Entry And Work In Confined Spaces

Medical

Any employee required to work in confined spaces must have undergone medical assessment in order to ensure they are fit to work. In Thames Water, the weight limit for working in confined spaces must not exceed 118kg. All confined space personnel are responsible for ensuring that this weight limit is not exceeded.

There are two types of medical, depending on the level of competence required:

**CP1 Self - Assessment Medical Questionnaire**
- For employees required to work in confined spaces, a self-assessment medical questionnaire must be completed and medical fitness confirmed BEFORE training, repeated at three yearly intervals until the age of 55 where medicals will then be required annually

**CP2 Physical Medical Assessment Via Medical Adviser**
- The requirements of the CP2 role can be very demanding, especially during an emergency where there is the possibility of recovering a casualty whilst wearing full breathing apparatus. Therefore, in order to ensure that employees are not put under undue physical stress, a full medical assessment is required to ascertain health and fitness levels. These medicals must be carried out BEFORE training and repeated at three yearly intervals until the age of 55 where medicals will be required annually

**Face Fit Test Via Occupational Health**
- For any employees required to wear respiratory protective equipment (breathing apparatus) a manager must:
  - Identify those employees required to wear tight fitting RPE,
  - Arrange for a face fit test to be carried out,
  - Ensure that the results of the face fit test are recorded

**Authorised Person (C)**
- Employees must have proven experience, gone through an assessment process and must be appointed by a manager (ML5 or above), in writing, on the recommendation of a competent assessor
- Must have received prior training to CP1 level and have practical experience of confined spaces
- Must have experience in identifying and mitigating risks
**Briefing**

All persons involved in confined space activities must be briefed on the hazards, risks and control measures pertinent to each entry. It is the responsibility of the manager/supervisor (which could be the CP2 in Charge or top man) to ensure these briefings are delivered. Briefings should include, but not be limited to, the risk assessment, the safe system and work instruction. Safe systems of work must include emergency procedures and this must be briefed to all of those involved in the job.

All persons receiving these briefings should indicate (in writing) that they fully understand the risks and hazards and will have a zero compromise approach to their work.

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**CP2 In Charge**

- Must be assessed by a competent assessor and appointed by a minimum of L6 manager and supported by the safety adviser

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**Senior Atmospheric Tester (SAT)**

- Senior Atmospheric testers must have working knowledge of confined spaces and specialist knowledge of gases and chemicals in order to make decisions for declassification for confined space entry
- Must have received training in confined spaces to CP1 and Manager/Supervisor standard
- Managers/Supervisors of confined spaces and confined space personnel
- Must have attended training on the management of confined spaces

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**Managers/Supervisors Of Confined Spaces And Confined Space Personnel**

- Must have attended training on the management of confined spaces
A permit-to-work system is a formal written system which will be required where there is a reasonably foreseeable risk of serious injury in entering or working in the confined space. The permit-to-work procedure is an extension of the safe system to work, not a replacement for it.

A permit-to-work system is unlikely to be needed where, for example:

A. The assessed risks can be controlled easily
B. The system of work is very simple
C. You know that other work activities being carried out cannot affect safe working in the confined space

The use of a permit-to-work system does not, by itself, make the job safe. It supports the safe system, providing a ready means of recording findings and authorisations required to proceed with the entry. It also contains information, for example time limits on entry, results of the gas testing, and other information that may be required during an emergency and which, when the job is completed, can also provide historical information on original entry conditions.

A safe system of work will normally be required where the entry is complex, carried out infrequently (due to nature and contents of confined space). The Safe System of Work should be developed in consultation with the relevant safety adviser.
Manning Levels And Equipment

In Thames Water there are four classes of confined space entry:

- Class O – gas check before entry (not depicted)
- Class A – Working attached to a winch at all times
- Class B – Working away from the point of entry and off the winch
- Class C – Permit entry only

Throughout industry, these terms may be different (e.g. NC1, NC2, NC3)

**TW Class O - Gas check**

Examples of Class O entries include, direct access meter pits not more than 1.5 metres deep, certain specified dry wells. Adequate natural or mechanical ventilation must be provided, access and egress are simple and unobstructed and there is no recognisable risk of flooding.

**TW Class A Entry**
TW Class B Entry

Test atmosphere before & after continual monitoring during entry
Observe entry procedures before entering

RESUSCITATION KIT
Managers will be required to assess manning level requirements for each type of entry being carried out. For example, a deep sewer entry which involves stairs, landings and a long traverse may require more than two rescue personnel, it may be necessary to “leap frog” rescue teams along the length of a tunnel/sewer to ensure rescue capability at each manhole opening along the route. Please speak to your safety adviser for more information if necessary.
Under Regulation 5 of the Confined Space Regulations 2015 states:

“No person at work shall enter or carry out work in a confined space unless there have been prepared, in respect of that confined space, suitable and sufficient arrangements for the rescue of persons in the event of an emergency, whether or not arising out of a specified risk”

For every confined space entry, emergency response must be considered and included in a safe system/work instruction. This will vary depending on the complexity of the entry. For example, for a Class A entry on a low risk confined space, the requirement would be for one person at the top of the confined space to winch a person to safety and administer first aid if this becomes necessary.

For Class B and C entries, there must be an emergency rescue team and appropriate equipment in place should an incident occur. Consideration should be given to the depth, traverse and communications for all class B entries when deciding on the appropriate manning levels for both working and rescue parties.

In any case, the emergency services must be called and a full briefing provided to the person in charge to provide the best possible chance for casualty to be extracted safely without causing further injury or distress. RELIANCE ON THE EMERGENCY SERVICES ALONE WOULD NOT BE CONSIDERED AS EMERGENCY ARRANGEMENTS.

Further Information

Confined Space Regulations 1997
Management of Health and Safety at Work Regulations 1999
Health & Safety At Work etc Act 1974
Control of Substances Hazardous to Health (COSHH) 1999
Respiratory Protective Equipment - Guidance
Provision and Use of Work Equipment Regulations 1998
Lifting Operations and Lifting Equipment Regulations 1998
Manual Handling Regulations 1992

Legend

First Aid Kit
Gas Monitor
Resuscitation Kit
Breathing Apparatus
Safety Harness
Escape Set
Gas Detector