LONDON FIRE BRIGADE

Incidents involving confined spaces

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1 Introduction

1.1 There are many incidents where Brigade personnel may be required to enter into what may be determined as a confined space.

1.2 The confined spaces regulations 1997 came into force on 28 January 1998. There are no exemptions for the emergency services and therefore the Fire and Rescue Service is required to make provision to comply with these regulations and the approved code of practice (ACoP).

1.3 The definition of a confined space, according to the confined spaces regulations 1997 is, "Any place, including any chamber, tank, vat, silo, pit, trench, pipe, flue, well, or other similar space in which, by virtue of its enclosed nature, there arises a reasonably foreseeable specified risk."

1.4 For fire service purposes a confined space may be defined as having the following characteristics:

- Limited or restricted means of entry or exit.
- Is large enough for a person to enter to perform tasks.
- A place which is substantially enclosed although not always entirely and where serious injury can occur from hazardous substances or conditions within the space or nearby.
- A dangerous or potentially dangerous work area with only restricted openings for entry and exit that would make emergency escape difficult.

1.5 Some places fall within the definition of confined space, but only on the occasions when a process is being carried out, or prior to it being fully ventilated e.g. a purpose built room that is used for spray painting.

1.6 Places not usually considered to be confined spaces may also become so because of a change in conditions inside the space or a change in the degree of enclosure or confinement. This may occur intermittently, for example a basement room becoming flooded.

1.7 There are therefore a wide range of incidents that have the potential to incorporate a confined space, these incident types all have procedures that should be read in conjunction with this instruction. This is to ensure the correct safe system of work is employed along with any alternate or additional control measures not specified in this policy, examples include:

- Policy number 793 - Compartment Firefighting
- Policy number 773 - Firefighting in basements
- Policy number 633 - High Rise Firefighting
- Policy number 557 - Urban Search and Rescue Policy
- Policy number 302 - Collapse structures
- Policy number 807 - Incidents involving silos
- Policy number 121 - Safety in sewers and sewer rescues
- Policy number 796 - Hazmats; fires and incidents involving hazardous substances
- Policy number 581 - Water rescue and safety when working near, on or in water
- Policy number 547 - Line operations
- Policy number 467 - Breathing apparatus sub surface procedures

2 Hazards

2.1 The hazards in a confined space arise through the combination of the confined nature of the work place and the possible presence of substances or conditions which taken together could increase the risk to the safety or health of personnel.

2.2 When attending a confined space incident, especially where an entry within the space is required to resolve it, incident commanders should determine what the greater hazard to crew safety is:

- The physical characteristics and restrictions of the confined space
- or the hazard that has been introduced within that space.

2.3 When the hazard has been assessed, the appropriate control measures can then be implemented. It should also be pointed out that more than one control measure may need to be adopted to ensure that a safe system of work is implemented

2.4 The hazards listed below can reasonably be expected to be encountered when attending incidents in confined spaces however the list is not exhaustive and IC's should always be aware of additional hazards when conducting their own risk assessment and formulating their objectives and plan:

Hazard within the confined space	**Risk to firefighters involved in the rescue of persons trapped**	**Cause**	**Control Measure**
Oxygen deficiency.	Death by oxygen starvation. Other life changing injuries such as brain damage due to oxygen starvation.	This can result from purging of the confined space with an inert gas to remove flammable or toxic gas fume or vapour. Biological processes consuming oxygen such as sewers or fermentation in sealed silos, where crops have been or are being stored. Burning, welding and grinding operations within the confined space may also create an oxygen deficient atmosphere.	Do not enter unless to save a saveable life. Use of gas monitors for atmospheric monitoring. Initiate and maintain Cordons. Deploy sector commanders and safety Officers where applicable. Breathing apparatus procedures. SavOX Escape set (where appropriate). Minimum personnel within the hazard zone.
Flammable substances.	A range of injuries including death and severe burns that may be sustained through being burnt.	This can arise from previous processes that have taken place in the confined space, leading to the ignition of airborne particles e.g. flour in silos or flammable substances that have leaked from other areas, see Policy number 807 Incidents	Do not enter unless to save a saveable life. Use of gas monitors for atmospheric monitoring of Lower Explosive Limit (LEL) levels. Initiate and maintain Cordons. Deploy sector Commanders and safety

		involving Silos There is also a possibility that gas may be introduced into a confined space due to a gas main becoming damaged, leading to a flammable/explosive atmosphere.	officers where applicable Sufficient firefighting media selected and deployed. Adopt the appropriate firefighting procedure for the situation. Use sprays instead of main jets on substances such as dusts and flour. Isolate processes to prevent movement of dust/powder/flammable material. Ventilate the premises correctly.
Toxic gas fume or vapour.	Death by suffocation or ingestion of toxic material. Other life changing injuries including brain damage through inhaling or ingesting toxic material.	Fumes / vapours may remain from previous processes, from disturbed sludge or build up in sewers, manholes or contaminated ground. Fumes/vapours can also be produced by work inside the confined space such as welding, spray painting or the use of adhesives or solvents. Gases such as Hydrogen sulphide, carbon monoxide and hydrogen cyanide are particularly prevalent in sewers; see Policy number 121 Incidents involving sewers and sewer rescue. Gases can also be entrained into a confined space by other factors such as a broken gas main, an appliance engine left	Do not enter unless to save a saveable life. Use of gas monitors for atmospheric monitoring. Initiate and maintain Cordons. Deploy Sector Commanders and Safety Officers where applicable. Breathing apparatus procedures. SavOX Escape set (where appropriate). Minimum personnel within the hazard zone. Isolate processes where possible. Turn off appliance engines. Ventilate the premises correctly.

		running or a change of wind direction.	
Hazardous materials	Death by ingesting or contamination by biological hazards. Other life changing injuries in the long medium and short term including brain damage through inhaling or ingesting biological hazards.	Typically from laboratories or research establishments where biological hazards are stored for research in the cure for disease, or in hospitals where patients are isolated in their treatment of infectious/contagious disease.	Do not enter unless to save a saveable life. Use of gas monitors for atmospheric monitoring. Initiate and maintain Cordons. Deploy sector commanders and safety officers where applicable. Obtain advice from on site specialists. Additional PPE (GTCPS) Breathing Apparatus procedures. SavOX Escape set (where appropriate). Minimum personnel within the hazard zone. Isolate processes where possible. Adopt procedures detailed in the Hazmat policies. Decontamination procedures.
Radiation.	Death through contamination by radioactive material. Other life changing injuries in the long medium and short term including brain damage through inhaling or ingesting radioactive material.	From establishments where radioactive material is kept in machinery such as x-ray equipment or at other research establishments.	Do not enter unless to save a saveable life. Use of gas monitors for atmospheric monitoring. Use of Electronic Personal Dosimeter (EPD). Additional PPE (GTCPS). Initiate and maintain cordons. Deploy sector commanders and safety officers where applicable. Obtain advice from on site specialists.

			Breathing apparatus procedures. Minimum personnel within the hazard zone. Isolate processes where possible. Time, distance, shielding. Decontamination procedures.
Liquids and Free flowing solids.	Death from drowning. Death from suffocation. Death from crush injuries. Other Life changing injuries as a result of being engulfed by the free flowing substance.	The ingress of liquids that flow into a confined space can potentially drown or lead to other serious injuries depending on its quantity, toxicity or corrosiveness, see Policy number 796 HAZMATS; fires and incidents involving hazardous substances. An engulfment hazard also exists with free flowing solids. A free flowing solid is any substance consisting of solid particles and which is capable of flowing, such as flour, grain, sugar or sand. Free flowing solids such as grain can also partially solidify or bridge in silos forming an unstable structure that can collapse unexpectedly.	Do not enter unless to save a saveable life. Use of gas monitors for atmospheric monitoring. Initiate and maintain cordons. Deploy Sector commanders and safety officers where applicable. Obtain advice from on site specialists. Breathing apparatus procedures. SavOX Escape set (where appropriate). Minimum personnel within the hazard zone. Isolate processes where possible.
Metabolic Heat Stress.	Death in extreme circumstances. Loss of consciousness. Inability to function rationally/correctly.	Temperatures inside the confined space, arduous working conditions and the wearing of PPE and respiratory protective equipment (RPE) can lead to a dangerous rise in core body temperature, see Policy	Do not enter unless to save a saveable life. Minimum amount of time spent in hazard zone. Appoint safety officer to monitor crews. Regular monitoring of crews.

		number 284 Metabolic heat stress	Rotation of crews. Water to rehydrate crews.
Collapse of structure/trench/pit/ Sewer.	Death due to crush injuries. Death due to suffocation. Life changing injuries sustained due to collapse of structure/confined space.	Collapse due to structural failure.	Do not enter unless to save a saveable life. Minimum personnel within the hazard zone. Initiate and maintain cordons. Deploy sector commanders and safety officers where applicable. Use trench trained LFB personnel to create a safe system of work. Minimum movement of appliances and plant machinery close to trench.
Risk of further collapse of structure	Death due to crush injuries. Death due to suffocation. Life changing injuries sustained due to collapse of structure/confined space.	Collapse of structure due to external influences on the structure /confined space.	Do not enter unless to save a saveable life. Minimum personnel within the hazard zone. Initiate and maintain Cordons. Deploy sector commanders and safety officers where applicable. Consider the use of USAR crews and USAR Adviser. Minimum movement of appliances and plant machinery close to trench.
Exposure to the elements.	Hypothermia. Hyperthermia.	Working in some confined spaces for long periods may lead to exposure to weather conditions that have an adverse affect on personnel's health, whether through heat or cold.	Do not enter unless to save a saveable life. Minimum personnel within the hazard zone. Deploy sector commanders and safety officers where applicable. Regular monitoring of crews. Rotation of crews.

			Seek suitable cover from the elements. Water to rehydrate. Regular planned reliefs.
Exposed utilities, gas, electricity and water.	Death by electrocution, drowning or asphyxiation as a direct consequence of exposure to the hazard. Other life changing injuries caused by contact with these utilities.	Coming into contact with utilities that have been exposed by other external influences such as collapse of the structure/confined space.	Do not enter unless to save a saveable life. Minimum personnel within the hazard zone. Use of gas monitors for atmospheric monitoring. Seek specialist advice from on site engineers. Initiate Cordons. Deploy sector commanders and safety Officers where applicable.
Working at Height.	Death and other life changing injuries sustained by falling from height.	Some confined spaces may necessitate the need to work at height by ascending or descending fixed ladders, or accessing using a line rescue system. I.e. silo entry or effecting entry into sewers.	Minimum personnel to work in the hazard zone. Utilise tactical adviser rescue. Utilise appropriate resources as advised by the tactical advisor. Deploy sector commanders and safety officers.
Restricted working within the confined space.	A range of musculoskeletal injuries, from strains and sprains to life changing injuries.	Working in small confined spaces with limited room for personnel to move within the compartment . Restricted access and egress.	Do not enter unless to save a saveable life. Minimum personnel to work in the hazard zone. Regular monitoring of crews. Rotation of crews. Deploy sector commanders and safety officers. Consider the use of USAR crews and USAR adviser.

3 Pre-planning

3.1 At premises where it is reasonable to assume that confined space workings may be taking place or where it is known that people are working within a confined space, a familiarisation visit should take place (7(2) (d)) and be recorded as per Policy number 800 - Management of operational risk information.

3.2 It is vitally important for officers to obtain all relevant information available from the premises owner or site manager, or the contractor's responsible person. This is to enable the correct information to be recorded on the Operational Risk Database (ORD), along with any specific operational plans or tactics, as well as additional appliances or specialist resources.

3.3 The type and detail of information required will vary from premise to premise, and will be dependant on the type of process being carried out, the nature of the confined space and the number of personnel involved.

3.4 The list below gives officers guidance on the type of information required, it is not a definitive list and there may be other considerations dependent on the nature of the hazard and the associated risks that are involved.

- Contact details of site engineer/responsible person, including both in and out of hour's information.
- Any specialist processes that are relevant to the site or premises.
- The number of any on site personnel that may work within the confined space.
- The type of process or work being undertaken and any significant hazards and risks that firefighters may encounter.
- Any on site Control measures or procedures available for Fire Service use.
- The location of any control room that can initiate or isolate any on site control measures.
- Rendezvous point where the Brigade will be met by site personnel with incident information.
- Industry standard safe system of work in place following the premises owners risk assessment.
- Control measures/procedures required to be taken if on site control measures fail.
- Isolation points for machinery and utilities.
- Access and egress points for personnel and equipment with reference to restrictions or obstructions in regard of width and weight of vehicles.
- Site plans of the premises.
- Water supplies or automatic suppression systems.
- Provision for the removal of fluids.
- Provision for the removal of gases/fumes.
- Provision for forced ventilation.

3.5 Once this information has been gathered it must be entered on the mobile data terminal (MDT) database and on the ORD.

3.6 Once the information has been entered, all watches should undertake regular visits to ensure that they are familiar with the site, any process carried out and then review the information to ensure that it remains current and fit for purpose.

3.7 Station and borough training plans should take into consideration and specifically address premises where work is carried out and where there is a potential life risk in confined space working.

4 En route

4.1 Appliance commanders must ensure all personnel are rigged in full structural firefighting personal protective equipment, Policy Number 693 Structural firefighting personal protective equipment (PPE).

4.2 Information received en route and any pre planning that may effect on arrival tactics must be passed on to all relevant personnel.

4.3 Full use must be made of all available information systems such as the MDT and ORD (operational risk database) in order to inform on arrival tactics.

5 On arrival

5.1 If not already part of any pre- planning arrangements a rendezvous point (RVP) must be nominated at the earliest possible opportunity, and all oncoming appliances should adhere to this instruction.

5.2 Appliances should park safely at incidents especially if this in on the roadway, and the instructions contained within Policy number 754 - Working on roadways must be followed.

5.3 If crews are not immediately required for deployment on the incident ground they should await instructions for deployment in a place of safety, which will be designated by the IC, until they are deployed on the incident ground. This is to ensure entry into the confined space is not made in an uncontrolled manner.

5.4 Appliance commanders must consider the need to position appliances to allow additional LFB, and other emergency service vehicles, sufficient access and egress.

5.5 To prevent the ingress of exhaust fumes into a confined space, vehicles that are not required for operational tasks such as pumping are to switch off the engine. The IC should also take into account the direction of the wind where exhaust or other fumes could be introduced into a confined space.

5.6 At known confined space incidents, or where the IC is informed that the incident involves a confined space, the IC must maintain strict control over personnel and appliances to ensure that their operational plan is strictly adhered to, and no additional hazards are introduced to the incident. Officers should refer to Policy number 341 Decision making model and Policy number 342 - Dynamic risk assessment.

5.7 If preplanning has taken place, and there is a confined space action plan for the premises, this should be conveyed by the incident commander to all relevant personnel at the incident,

5.8 The IC should gather relevant information at the earliest opportunity this should include:

- Location and nature of incident.
- Persons involved/work being carried out.
- Access/egress points.
- Hazards.
- Contents of the confined space and any process carried out within that space.
- Utilities isolation.
- Ventilation systems.
- Fixed installations.
- Plans of site.
- Isolation from ingress of liquids /free flowing solids.
- Availability of specialist machinery/subject matter experts.

6 Personal Protective equipment

6.1 For Incidents involving confined space, the **minimum** level of PPE that is required is full structural firefighting PPE.

6.2 There is a progressive approach to the level of protection available to crews. The IC, dependant on the situation and prevailing conditions, will determine the appropriate level.

6.3 All crews deploying into the confined space should carry an active gas detection monitor as soon as one is available.

6.4 Gas detection monitors are carried on all FRU's. A Rescue Centre FRU forms part of the predetermined attendance (PDA) for confined space incidents.

6.5 Where personnel are required to enter a confined space this function should ideally be carried out by USAR confined space trained FRU personnel.

6.6 The IC will need to carry out a risk assessment to determine which of the following levels of PPE are to be implemented, as part of the safe system of work.

6.7 Firefighters or confined space trained FRU crews wearing full structural firefighting PPE. This is only appropriate:

- When the casualty is within sight of the entrance, and an active gas detection monitor is deployed.
- It is confirmed that the atmosphere within the confined space is safe to enter.
- Delaying the rescue operations could lead to an immediate risk to human life i.e. where life threatening or life changing conditions are likely to result.

6.8 Firefighters or USAR confined Space trained FRU crews wearing full structural firefighting PPE with SDBA/EDBA.

- Must be used when it **cannot be** confirmed that the environment to be entered has a safe breathable atmosphere, or there is no active gas detection monitoring system in operation.

6.9 USAR confined space trained FRU personnel wearing dry suits, gloves and USAR helmet with headlight, equipped with EDBA or SDBA.

- Must be used when the incident dictates that dry suits are required, for example a sewer rescue and crews are entering an atmosphere that cannot be confirmed as safe and breathable.

6.10 USAR trained FRU crews wearing the appropriate level of USAR PPE. This is only appropriate:

- When the IC has determined that the incident is a USAR incident and that USAR procedures are applicable rather than the confined space policy.

6.11 USAR confined space trained FRU personnel wearing appropriate PPE (Dry suit, USAR or firefighting) equipped with SavOX escape set.

- This level is only to be considered when it is confirmed that there is a safe atmosphere present within the confined space.
- Where it can be confirmed that the atmosphere is safe and breathable a SavOX set, which is carried on USAR module 2, will be carried by crews as an additional safety control measure. The set is to be used in the event that the atmosphere deteriorates so rapidly that crews need to return to a place of safety outside of the confined space.
- If deploying with SavOX crews must carry an active Gas Detection Monitor.

6.12 FRU personnel who have undertaken the USAR confined space operators course have been trained in the use of the SavOX Escape set, which is carried on USAR module 2. Only those personnel who have been trained in its use can use it in an operational environment. Refer to Policy number 861 - MSA SavOX escape set.

6.13 The SavOX escape set is only to be used for the withdrawal of crews in an emergency situation; it does not enable the crew to undertake work within a confined space with oxygen deficient/toxic atmospheres.

6.14 If personnel have to enter a confined space without gas detection equipment to save a saveable life, it must be assumed that toxic/explosive gases are present. In these circumstances SDBA/EDBA must be worn and intrinsically safe lighting used. Once it has been confirmed that there is no longer a life risk, crews are to remain outside of the area until an FRU with Gas Detection monitors is in attendance

7 Operational procedure

7.1 Entry into a confined space may be undertaken:

- To save a saveable life.
- If the incident cannot be resolved safely unless entry into a confined space is made. This could simply be passing through a confined space that requires no additional control measures, as there are no hazards present, or may require specific control measures such as the actuation of purging systems.

7.2 Whenever an entry into a confined space is made it is imperative that a planned safe system of work is initiated and maintained, where possible this should be documented and recorded on the key decision log on the CU.

7.3 As part of this plan a risk assessment of the incident must be carried out by the IC and where possible recorded on the key decision log on the CU. The IC must determine as a result of the risk assessment:

- What safe systems of work are required to be implemented immediately and what resources are available to the IC immediately.
- What additional systems of work and resources are required, and how long will these additional resources take to arrive.
- What actions can be taken immediately. (For example the need to rescue casualties from the confined space, and the urgency of that rescue)
- What actions will require additional control measures.
- The nature of the hazard and extent of the risks that the hazard presents.

7.4 The IC must ensure that any site engineer/responsible person is located and is requested to remain on site, in order to provide information that will assist the IC in the development of an incident plan.

7.5 The IC must consider the early deployment of Safety Officers and Sector Commanders. Confined space incidents have the potential to be very high risk and it is essential that the IC implements a robust incident command structure at the earliest opportunity.

7.6 The IC must consider the early request for additional resources to ensure a safe system of work e.g. FRU with line capabilities, DIM equipment, Scientific Advisors/HMEPO, Tactical Advisers (USAR Advisers, USAR Trainer Responders).

7.7 The IC must ensure an effective communication system is initiated and maintained on the incident ground, in particular communications must be maintained with any crew deploying into the confined space.

7.8 Where there is a risk of fire and explosion the IC should ensure that sufficient Firefighting media is deployed and consideration is given to early ventilation, where appropriate, to assist in making the area safe.

7.9 Personnel must not enter the confined space without breathing apparatus, unless atmospheric testing has confirmed the atmosphere is safe and breathable. Regular testing and monitoring of the atmosphere within the confined space is required to confirm this, and all atmospheric readings must be recorded.

7.10 Whenever an entry is made into a confined space, even if crews are not wearing breathing apparatus. The IC must agree and initiate a strict method of entry control, recording the following information:

- The names of the personnel entering
- The time they enter
- The task they will be undertaking
- Where available, gas monitor readings
- The location where they will be working

7.11 There are a range of methods available for the recording of this information. These are:

- If wearing breathing apparatus, the entry control board.
- If not wearing breathing apparatus the Forward Information Board (FIB), which is carried on all Pump Ladders in the early stages of the incident.
- If not wearing breathing apparatus the Confined Space Board, which is carried on USAR module 2. As soon as a Confined Space Board becomes available all information recorded on the FIB must be transferred to the Confined Space Board as this equipment is incident specific.

7.12 Safe access and egress must be maintained at all times and crews should be kept to a minimum in these areas.

7.13 Essential electrical supplies must be maintained, but non essential electrical supplies and other mechanical power systems such as generators should be isolated. This should be tasked to onsite staff and if appropriate a firefighter is to remain at isolation point to ensure power is not reinstated inappropriately.

7.14 The IC must consider the use of ventilation systems, fixed installations, and gas purging systems where available, to minimise the hazards within the confined space. An on site specialist/site manager, if present, should be able assist the IC with this information.

7.15 Potential hazards such as gas, liquid or other free flowing solids should be isolated where appropriate, but advice from the on site specialist or site manager should be sought as they will be able to provide the IC with information on the consequences of this action.

7.16 When working in a confined space that contains free flowing solids, additional safety measures may need to be applied such as line operations. The IC must request the attendance of a tactical adviser rescue for advice.

7.17 The IC should also consider the need for decontamination procedures when crews enter a confined space, where they may be contaminated by fluids such as stagnant water or sewage, further advice can be given by the duty Hazardous Materials and Environmental Protection Officer (HMEPO).

8 After the incident

8.1 After completion of the incident, the incident commander may be asked to assist other LFB departments and partner agencies, such as the Police and the Health and Safety Executive with any investigation into the incident that is required.

8.2 Any PPE or equipment that has become contaminated from the incident will need to be decontaminated, as per Policy number 584 Firefighter decontamination & Policy number 693 Structural firefighting PPE before being placed back into service. Specialist advice can be obtained from the duty HMEPO or if in attendance, the Scientific Adviser.

8.3 The IC should review any existing site information held on the MDT/ORD, and if appropriate, forward it to the relevant station ground's station manager, this will enable the station manager to implement familiarisation visits and any subsequent changes that may be required.

9 Further reading

9.1 Associated policy documents that should be considered when reading this policy, including:

- Confined space regulations 1997
- Policy number 513 - Premises information box systems.
- Policy number 341 - Decision making model.
- Policy number 342 - Dynamic risk assessment.
- Policy number 518 - Messages from incidents.
- Policy number 408 - Incident command.
- Policy number 284 - Metabolic heat stress.
- Policy number 466 -Respiratory protective equipment – Breathing apparatus operational policy.
- Policy number 861- MSA SavOX escape set.
- Policy number 467 - Breathing apparatus sub-surface procedure.
- Policy number 557 -Urban search and rescue policy
- Policy number 662 - Hydration of personnel at operational incidents and training events.
- Policy number 488 - Incident communications.
- Policy number 700 - TSR2000 UHF transportable radio repeater.
- Policy number 121 – Safety in sewers and sewer rescue and
- Policy number 807 - Incidents involving silos.
- Policy number 302 - Collapsed structures.
- Policy number 584 - Firefighter decontamination.
- Policy number 693 - Structural firefighter Personal Protective Equipment (PPE)
- Policy number 796 -HazMat; Fires and incidents involving hazardous substances
- Policy number 793 – Compartment firefighting
- Policy number 773 – Basement firefighting
- Policy number 633 – High rise firefighting
- Policy number 581 – Water rescue and safety when working near, in on or near water
- Policy number 547 – Line operations

Appendix 1 – Key point summary - Incidents involving confined spaces

Information on task or event

- Attend main entrance or pre determined RVP.
- Nominate RVP, if required.
- Liaise with responsible person, gather information.
- Conduct initial assessment of building/scene of operations
- Location and nature of incident.
- Persons involved/process being carried out.
- Access /egress points.
- Plans of site.

Information about resources

- Onsite ventilation systems, fixed installations .
- Onsite specialised personnel/information.
- Availability of onsite specialist machinery.
- A additional resources/Tactical advisors/scientific advisor.
- FRU's for line ops or DIM
- USAR resources, where required.
- Utilities on site
- MDT for site specific information.

Information about risk and benefit

Hazards :

- Liquids and free flowing solids
- Metabolic heat stress
- Working at height
- Oxygen deficiency
- Flammable substances
- Toxic gas fumes and vapour
- Collapse of structure
- Utilities, electricity/gas/water
- Slips, trips, falls
- Falls from height

Gathering and thinking

Objectives

- Save life
- Crew safety - Safe systems of work
- Others associated with the incident

Communicating

- Information received en route must be passed to all personnel and other take appliances.
- Set up and maintain effective incident ground communication systems, in particular communications must be maintained with any crew deployed into the confined space.

Controlling

- Early deployment of Sector Commanders/safety officers.
- When working in a confined space that contains free flowing solids additional safety measures should be applied, i.e. request the attendance of tactical adviser technical rescue for advice
- Strict entry control protocols are to be followed to record and monitor all those entering the confined space.
- Safe access and egress must be maintained at all times and crews should be kept to a minimum.
- Personnel should not be committed until the risk of fire and explosion has been eliminated except where to delay would result in the loss of life.
- Personnel must not enter a confined space without BA, unless atmospheric testing has confirmed the atmosphere is safe. Regular testing of the atmosphere must be carried out.

Plan

- IC will carry out RA to determine the level of PPE:

1. Full structural firefighting PPE
2. Full structural firefighting PPE with SDBA/EDBA.
3. Confined space trained FRU personnel wearing Dry suit, gloves and USAR helmet and EDBA/SDBA.
4. USAR trained FRU personnel wearing the appropriate level of USAR PPE.
5. Confined space trained FRU personnel wearing appropriate PPE (full structural Firefighting PPE/USAR PPE/ dry suit) for type of incident and SavOX sets (this is an emergency escape set, only to be used by FRU/USAR trained personnel). In addition they must carry an active gas detection monitor.

- Following a RA the level of PPE **stated in 1above** is only appropriate when:
  - The casualty is within sight from the entrance, and the immediate area has an active gas detection monitor deployed
  - It is confirmed that the atmosphere within the confined space is safe to enter
  - Delaying the rescue operations could lead to an immediate risk to human life.
- A DRA of an incident should be carried out which must weigh the benefits of immediate action against the potential risk to personnel which should consider:
  - the need for rescues and urgency of those rescues,
  - what resources are immediately available and how long additional resources will take to arrive
  - and the nature and extent of the hazards and risks involved.
- Essential services/utilities must be maintained.

Document history

Assessments

An equality, sustainability or health, safety and welfare impact assessment and/or a risk assessment was last completed on:

EIA	10/07/2013	SDIA	10/07/2013	HSWIA		RA	15/06/2013

Audit trail

Listed below is a brief audit trail, detailing amendments made to this policy/procedure.

Page/para nos.	Brief description of change	Date
Page 9 para 3.5	Link to 'PN748 - MDT's' removed as policy has been withdrawn.	26/01/2016
Page 7	Right hand column of table updated. "Use online shoring if available" changed to "Use trench trained LFB personnel to create a safe system of work".	07/11/2016

Subject list

You can find this policy under the following subjects.

Freedom of Information Act exemptions

This policy/procedure has been securely marked due to:

Considered by: (responsible work team)	**FOIA exemption**	**Security marking classification**