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In Ireland, some 600 officers at station and sub-station officer levels respond as first attendance officers to fire, rescue and other emergency incidents as a service to their local community. They operate from 220 fire stations nationwide, responding to in the region of 30,000 emergency calls (excluding ambulance calls) each year.

The range and complexity of tasks which station and sub-officers undertake continues to expand. In recent decades, response to hazardous substances incidents and road traffic accidents have been added to the fire services area of operations. The range of equipment and procedures which the Fire Service operates continues to expand accordingly.

This Junior Officer Handbook has been prepared to assist in meeting the challenge of these changes.

The Junior Officer Handbook is intended as one of a planned series of Irish Fire Services Handbooks. Others in the series include:

- Fire-Fighter Handbook - issued April, 2001
- Senior Officer Handbook - issued April, 2001
- Rescue Handbook
- Road Traffic Accidents Handbook
- Hazardous Materials Handbook

The handbook is based to a large extent on existing training material. Some new material has been added, where appropriate. The handbook format is intended to facilitate updating and expansion of sections.
Preparation of this handbook was overseen by a sub-committee of the Fire Services Council. The Council wishes to express its gratitude to the members of that sub-committee:

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Section 1. Role of the Junior Officer

1.1 Purpose and Use of Handbook

This handbook is one of a series being produced to assist staff of fire authorities in discharging their duties. The purpose of the handbook is to bring together into one reference document relevant information for junior fire officers. The format is intended to allow for updating and expansion as required in the future. The handbook draws on information provided in Fire Service Officer Unit I and Unit II courses provided by the Fire Services Council.

The handbook is divided into eight sections and provides information under the following headings:

- the role of the junior officer
- leadership
- controlling the incident
- brigade and operational procedures
- running the fire station
- training and instruction
- safety, health and welfare
- miscellaneous issues.

Much of the material in this handbook will already be familiar to officers. The contents are arranged to facilitate local practices, procedures and arrangements, which should be added to the handbook as appropriate.

1.2 The Role of the Junior Officer

The role of the junior officer, as the officer-in-charge of a fire station or crew, and as the officer-in-charge of fire and other emergency operations, is pivotal to the provision of an effective Fire Service. With this rank comes the responsibility and authority to carry out the role.
Duties as an officer can be very different from being a firefighter. As a firefighter you are required to do as directed by officers; as an officer you must decide what is to be done and give the appropriate orders.

This section introduces the main aspects of the officer’s role. It is intended as general guidance, and is not intended as a substitute for specific instructions given locally.

1.3 Main Functions of the Junior Officer

A Fire Service officer has broad responsibility to the brigade and to the fire authority to support and follow policy, as indicated through brigade orders, instructions, discussions with senior officers, etc.

The officer, as representative of the fire authority, provides assistance and support to the public, through an effective and efficient emergency service.

The officer has to ensure the safety, health and welfare of the firefighters under her or his command. S/he should ensure good communications with personnel. Fire Services do not operate in isolation. The Fire Service officer works with colleagues who expect established standards of work. Likewise, other emergency services with whom the Fire Service regularly works such as the Garda Síochána, Ambulance Service, etc. also deserve a fire service which they can rely on.

The main functions of an officer commanding a fire station or crew are:

- to protect and save life, and to render humanitarian services,
- to minimise the destruction of property,
- to exercise command and control at fires and other incidents,
- to maintain the unit in a state of operational readiness,
- to provide training, or assist in the provision of training, for the unit;
- to maintain the morale of the brigade,
- to promote and maintain a good public image of the fire brigade,
- to assist with training outside organisations, where appropriate,
- to keep up-to-date with relevant developments/ knowledge,
- to assist in fire prevention work, if required,
- to implement the policy of the fire authority,
- to maintain discipline within the brigade.

1.4 Skills of the Junior Officer

These functions involve a number of activities and skills which are discussed further in this Handbook, and which define officership. The main skills or activities are:

1.4.1 Leadership

The objectives of leadership are the maintenance of a working crew, achieving the required tasks, with discipline and welfare of personnel in mind. Leadership is dealt with in more detail in Section 2. Good communication between the officer and the crew is an important feature of good leadership.

1.4.2 Communication

The officer should maintain good liaison with personnel in the station or crew, as well as with colleagues and senior officers. Officers should have a good relationship with personnel, involving exchange of information on developments affecting the work, and of views on the service.

A good officer should know the individuals s/he is dealing with, and their problems as well as strengths and weaknesses.
1.4.3 Command and Control

The officer’s role as officer-in-charge (OiC) of operations is crucial to the delivery of effective emergency services. Command and control is dealt with in Section 3, but the other skills or activities listed here contribute to the officer’s and the crew’s readiness for emergencies. Section 4, dealing with operational tactics, also underpins the Junior Officer’s operational role.

1.4.4 Delegation and Supervision

Officers should assign duties to crew members which provide them with experience and allow them to learn and grow in their outlook and capabilities; the level of responsibility of tasks delegated should be appropriate for the ability of the individual. The officer should also bear in mind that s/he carries responsibility for tasks assigned and should supervise to ensure a successful or satisfactory outcome.

Delegating duties to crew members also frees the officer to concentrate on other issues.

1.4.5 Training

The development and maintenance of the skills and abilities of the crew under his or her command is an essential function and skill for a junior officer. Training and methods of instruction are dealt with in Section 6.

1.4.6 Running the Fire Station

The officer also has an important role in running the fire station, and this is addressed in Section 5.

1.5 Legal basis of the role of the OiC.

The Fire Services Act of 1981, confers powers on fire officers in control of operations at fires. The relevant extracts from the Act are given in Appendix 1.1.
Section 25 provides the authority for fire authorities to carry out or assist in emergency operations to safeguard or rescue persons or protect property. This includes non-fire emergencies, such as road traffic accidents or hazardous material incidents.

Section 27 makes provision for the control of operations for extinguishing fires. Fire authorities can make agreements for control of operations at incidents which may involve brigades or officers entering the functional area of a neighbouring fire authority.

Section 28 permits the person in control at a fire or other emergency to take such action as s/he considers necessary to extinguish a fire or rescue persons or property.

The section also confers immunity on the person in control or anyone acting under him or her against any legal action arising from measures taken by them to deal with a fire or other emergency.

Regulations made in 1987 under section 27 are intended to ensure that the person in control at a non-fire emergency will have the same immunity under the Act as in cases of fire. These regulations are known as the Fire Authorities (Emergency Operations) Regulations, 1987.
Appendix 1.1  Extracts from the Fire Services Act, 1981

Section 25  A fire authority may carry out or assist in any operations of an emergency nature, whether or not a risk of fire is involved, and a fire authority may accordingly make such provision for the rescue or safeguarding of persons and protection of property as it considers necessary for the purposes of that function.

Section 27  (1) Where one or more fire brigades are present at a fire occurring in the functional area of a fire authority, sole charge and control of all operations for extinguishing the fire shall be vested as follows-

(a) if the fire authority maintains a fire brigade and that fire brigade is present at the fire - in the person who is for the time being in charge of that fire brigade at the fire;

(b) if the fire authority does not maintain a fire brigade but has made an agreement with a fire authority for the performance of its fire-fighting functions and the brigade of that fire authority is present at the fire - in the person who is for the time being in charge of that fire brigade at the fire;

(c) in any other case - in the person who is for the time being in charge of the fire brigade of a fire authority which first arrives at the fire.

(2) Fire authorities may by agreement provide, notwithstanding anything in subsection (1), for the vesting of sole charge and control of all operations for extinguishing a fire in any person who is for the time being in charge of a fire brigade at a fire and for the transfer of such charge and control from one person to another.

(3) Whenever and so long as no fire brigade of a fire authority is present at a fire, the senior member of the Garda Síochána present at the fire shall have sole charge and control of all operations for extinguishing the fire.
(4) The Minister may by regulations provide—

(a) for the control of any operations of a fire authority under section 25, other than operations for extinguishing a fire, and

(b) for the vesting of sole charge and control of such operations and for the transfer of such charge and control from one person to another in such circumstances as are prescribed.

(5) In this Act "the person in control", in relation to a fire or other emergency, means the person in whom is vested, by or under this section, the sole charge and control of all operations for extinguishing a fire or of any other operations of a fire authority under section 25.

Section 28

(1) The person in control at a fire or other emergency may, either personally or by a member of the fire brigade present at the incident or by a member of the Garda Síochána, or by such other person as he authorises, do (if necessary, by force) all such things as are, in his opinion, necessary or expedient for the purpose of extinguishing the fire or for protecting or rescuing persons or property and, in particular, may—

(a) enter any land or building in which there is reason to believe fire has broken out or the emergency exists or any other land or building;

(b) cause any land or building to be vacated by the occupants;

(c) pull down or demolish any building or part of a building;

(d) use any water supply, whether public or private;

(e) take water from any watercourse, lake, pond or other source, whether natural or artificial;
(f) remove anything from the vicinity of the fire or other emergency.

(2) (a) The person in control at a fire or other emergency may require that any available water supply be controlled from the main pipes in any way that he directs in order to give a greater supply and pressure of water.

(b) He may, if he considers it necessary for the protection of other property, cause water or other extinguishing agent to be directed against that property.

(c) No action shall lie against a fire authority, the person in control at the fire or other emergency or any person acting under his powers under this subsection.

(3) Any person who wilfully obstructs or impedes the exercise by the person in control at a fire or other emergency or by any person under his authority or by any member of the Garda Síochána of the powers conferred on that person or member by this section shall be guilty of an offence.

(4) Where damage to any property is caused by the exercise of a power conferred by this section, the damage shall, for all purposes and in particular for the purpose of any contract of insurance, be deemed to have been caused by the fire or emergency.

(5) Any clause or condition inserted in a contract of insurance purporting to exclude or having the effect of excluding the risk of damage caused by the exercise of a power conferred by this section shall be void where the risk of damage caused directly by the fire or emergency in relation to which the power is exercised would be covered by the contract.


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Section 2. Leadership

2.1 Introduction to Leadership

The officer's role as leader of the station or crew is one which requires particular attention. The presence of a good leader can enhance the crew's operation as a team and contribute to the overall effectiveness of operations.

Few of us are natural leaders; an officer should examine his or her performance as a leader, and work over time to develop and apply leadership skills. This takes time and you may feel after a lifetime that you still have a lot to learn.

2.2 Leading the Crew

One useful way to look at leadership is known as the functional approach, which considers leadership functions as aimed at one of three areas - task needs, team maintenance needs, and individual needs. This approach allows you to assess your own performance as a leader, and also provides a means of examining the crew performance and considering appropriate action where the team has not performed to expectations.

A leader should be aware of the three areas of needs and do what s/he can to meet the various needs.

2.2.1 Task Needs

Groups are formed to undertake tasks which are too difficult or too impractical for one person to accomplish. For example, a group is needed to win a game of hurling, fly an aeroplane, or carry out all the tasks necessary to provide fire brigade services. Task needs are those activities required to carry out the task(s) or achieve the objective(s).

Examples of steps the officer or leader can take are:

- defining the task,
- making a plan,
- allocating work and resources,
- controlling quality and tempo of work,
- checking performance against the plan,
- adjusting the plan.

2.2.2 Team Maintenance Needs

To achieve the objective, the group needs to be held together as a cohesive team, to work together as a unit. Fifteen hurling stars do not make a winning team if they all work as individuals.

Examples of actions the officer or leader can take are:

- setting standards and example,
- maintaining discipline,
- building team spirit,
- praising, motivating, giving a sense of purpose,
- appointing sub-leaders,
- ensuring communications within the group,
- training the group.

2.2.3 Individual Needs

The individual brings his or her own personal needs into any group. These include needs for food, shelter, warmth, clothing, money. Individuals can also need to be accepted into the group, to be given status, to be allowed to use skills and to contribute to the group, to achieve ambitions.
Examples of actions the officer or leader can take to meet the individual needs are:

- attending to personal problems,
- praising individuals,
- giving status,
- recognising and using individual abilities,
- training the individual.

2.2.4 Integrating the Needs

The three areas are not isolated from each other. Needs in one area may have side effects in another; actions the officer may take aimed at one area may have effects in another.

For example, if an individual in a group is disaffected, the team will be weakened; if the officer or leader does something to meet the needs of the individual the team will be strengthened and will be more likely to achieve the task(s).

Again, for example, if there is a task success (such as a quick effective rescue and fire fighting) because of something the officer does (such as making a good plan), the team is more strongly motivated to attempt new tasks, and each individual will feel better integrated into the group.

If the officer does something to strengthen the team (such as providing effective training), it is more likely the crew will achieve tasks, and each individual will feel more confident.

2.2.5 Application in the Fire Service

In an emergency service such as the Fire Service, the task needs must take precedence over team or individual needs, particularly when involved in urgent tasks.
A good officer will pay attention to team and individual needs during quiet periods; team and individual needs are sometimes thought of as batteries to be charged up. After long or difficult periods when tasks must take priority, the officer should look for opportunities to address the team and individual needs and strengthen the team for future demands.

2.3 Fulfilling your Leadership Role

Most of the tasks you will be required to perform as a fire officer will have to be carried out through your crews. In order to have a good chance of a successful outcome, you should approach tasks in an organised manner, taking the opportunity where available to meet the needs of the task, group and individual.

The following steps are suggested to help the officer lead the group to achieve aims.

2.3.1 Planning

Before beginning a task, size up the situation. This involves determining the extent of the task, obtaining the relevant information, deciding on a plan of action, and estimating the resources you will need or assistance required.

2.3.2 Briefing

Explain the aim and the plan, giving reasons why, allocating tasks to crews and individuals, delegating to sub-officers, and setting expected standards.

2.3.3 Controlling

Maintaining crew standards, influencing tempo and ensuring that all activity is directed towards the aim.
2.3.4 Supporting

Encourage crew and slow individuals, discipline crew and individuals where necessary. Create team spirit.

2.3.5 Informing

Informing crew and individuals of all matters affecting them. Reporting back information from crews to senior officers.

2.3.6 Evaluating

Helping the crew to evaluate its performance, debriefing after fires or other tasks, giving credit or encouragement for good work, pointing out mistakes or weaknesses, and discussing whether methods could be improved.

2.4 Discipline

The frequently urgent tasks in which Fire Services are involved require a degree of emphasis on task needs. To this end, the Fire Service and fire brigades need to be operated in a disciplined manner.

2.4.1 Use of Authority

An officer should use the authority given to him or her by virtue of rank to run the brigade in a disciplined way. Equally, an officer should not use his or her authority in an unwarranted, unfair, or repressive manner.

2.4.2 Discipline and Grievances

An officer should be aware of discipline and grievance procedures in force in his or her fire authority. Breaches of discipline or issues raised as grievances should be dealt with in accordance with agreed grievance and disciplinary procedures. Where possible, issues should be dealt with by the junior officer; there will be occasions, however, which require bringing issues to the attention of senior officers.
2.5 Support

Part of an officer’s role is to provide support for the members of the team. Individuals have different capacities and needs at different times, and the officer has to be conscious of staff’s need for support sometimes, and be in a position to offer it appropriately and sensitively.

Such support can be necessary in a range of situations, from the operations ground to the fire station. For example, new members of the team may need support when they encounter their first casualties, and the officer, or another selected team member may need to watch carefully and support at the appropriate times. Experienced crew members may also find certain situations difficult, and again either the officer or a peer can provide necessary support.

The entire brigade may need support after particularly difficult incidents. The officer, through leading discussion on return to the fire station, can start the process of recovering from such incidents. This is sometimes referred to as defusing, and is different to operational debriefing, when the brigade reviews and tries to learn from its operations. Occasionally, the impact of particular incidents on the crew, or some members, may be such that the issue needs to be brought to the attention of the senior officer.

The officer also needs to be aware of the local authority’s policy with respect to staff support or employee assistance schemes, and where appropriate how to make referrals to this service.
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Section 3. Controlling the Incident

3.1 Introduction to Command and Control

The command structure in fire services exists to ensure that best use is made of available resources for effective and safe emergency operations. The command system is hierarchical, with orders issuing from the officer-in-charge (OiC) to subordinates, and routine situation reports being provided by them to the OiC in return.

The primary purpose of the maintenance of fire brigades by fire authorities is the rescue and protection of persons and property from fire and other emergencies. The role of the Fire Service officer, as the officer-in-charge of operations at fires and other emergencies, is pivotal to the provision of effective fire services.

This section sets out fundamental considerations for OiCs and outlines the standard approach to be used by officers. This systematic approach to command and control at incidents is given to assist officers. The approach is intended for use at the majority of incidents, large and small.

Benefits offered by a standard approach include:

- a positive approach to solving the problem,
- a clear method for prioritising and organising resources at the incident scene,
- a structure for accommodating different brigades at the incident scene,
- a common structure which allows for improved training of officers,
- a basis against which review and debrief of operations can be carried out.
At the core of the system is delegation; the aim is that the OiC should not have a large number of personnel reporting directly to her or him.

Advice on operational procedures at a range of situations, is given in Section 4.

Effective command and control is a skill which can be developed and enhanced over time, and, as an officer, you are encouraged to review your experiences and performance so as to identify lessons which help to improve your abilities.

3.2 Resolving the Incident

The objective for a fire brigade attendance at an emergency is to stabilise the situation and prevent further deterioration, with priorities assigned to tasks and a plan formulated to tackle the tasks using available resources.

ASSESS THE SITUATION

MAKE A PLAN

CONSIDER RESOURCES

IMPLEMENT THE PLAN

(REVIEW PROGRESS AND REASSESS IF NECESSARY)

CLOSE THE INCIDENT

These steps are dealt with in turn in the following paragraphs.

3.2.1 Assess the Situation

The OiC should first assess the situation, finding out the nature and scale of the problem and taking account of hazards to crew members and to other persons who may be affected. (The advice given in Section 4 includes information on potential hazards which may be presented by different types of incident.)
This sizing up of the situation should include:

- whether persons are threatened,
- whether animals are threatened,
- what is the nature of the threat,
- is there a fire,
  - where is the fire,
  - what is burning,
  - whether there is a risk of fire spread,
- whether there are special risks,
- what access is available to persons threatened or to fire.

This allows the officer to understand the type of incident and size of the problem. Some of this information (for example, information on special risks) may be available to an officer in advance of arrival at an incident, from the mobilisation message, from pre-fire planning, or from some other source.

### 3.2.2 Make a Plan

The next task for the OiC is to formulate a plan or strategy to deal with the incident. This should be based on the assessment of the incident, including the hazards identified. The plan should represent the broad approach to the incident and should take account of the need for operations to be conducted so as to provide adequate safety for emergency service personnel and others who may be affected. The main broad approaches are:

- **Offensive** - with resources deployed to eliminate the hazard (e.g. by extinguishing fire - typically with interior fire fighting - or, in the case of a build-up of flammable gas where a leak has occurred in a building, by ventilating the building and arranging for the supply to be cut off).

- **Defensive** - with resources deployed to prevent escalation of the incident by containing the hazard (e.g. by protecting
neighbouring buildings from fire spread - typically fighting the fire from a safe location using exterior fire fighting).

- **Rescue** - with resources deployed to rescue persons or animals from the hazardous situation.

A combination of approaches is often necessary. For example, it is generally necessary to adopt an offensive or defensive approach to supplement a rescue effort, eliminating or containing hazard(s) while rescues are carried out. Interior and exterior fire fighting approaches should not be combined in the same area, however.

The plan should be set out as a series of tasks or objectives to be accomplished, with priorities assigned to allow available resources to be deployed to best advantage.

The order of tasks or objectives in terms of priority would generally be:

- search and rescue of persons,
  - persons directly threatened,
  - persons not immediately threatened,
  - persons readily moved,
  - trapped persons,
  - search for missing persons,
  - search of damaged area,
- rescue of animals,
- prevent fire spread,
- surround and extinguish fire,
- deal with special risks.

### 3.2.3 Consider Resources

#### 3.2.3.1 Fire Brigades

Having made a plan, the OiC should decide the allocation of the available fire brigade resources (personnel, vehicles, equipment, fire fighting media) to the tasks in order of priority. Where adequate resources are available, a number of tasks may be
carried out at the same time. (For example, a special risk could be eliminated while persons are being evacuated.)

Where resources are not sufficient to allow all of the necessary tasks to be carried out, the OiC should consider requesting the attendance of further resources. The attendance of other appliances will take time, particularly in rural areas; further resources, if required, should be requested without delay. A requirement for further resources may be apparent to the OiC immediately on arrival, before completing a full assessment of the situation. A standard First Message Format may be of assistance to the OiC, an example of a standard format is shown in Figure 3.2.3.1.
Figure 3.2.3.1
FIRST MESSAGE FORMAT

From: _______________________________________________

At: _______________________________________________

Map/Grid Ref: _______________________________________

General/Description of Incident: ______________________________________
____________________________________________________________________

Size/Area of Extent:  _____________________________________

Persons Reported/ Numbers:  _____________________________________

Hazards/Threats: ____________________________________________
____________________________________________________________________

Assistance Required “Make Pumps”:
____________________________________________________________________

Specials Required: (e.g. HP, ET, Control Unit, Foam TR, Water Tanker,
Decontam Unit, Environment Unit)
____________________________________________________________________
____________________________________________________________________

Request Attendance: Senior Officer, Garda Síochána, Ambulance, ESB, GAS
____________________________________________________________________

Access Routes:
In: ____________________________________________

Out: ____________________________________________

Rendezvous Points: ____________________________________________
____________________________________________________________________

Other Information: ____________________________________________
____________________________________________________________________
3.2.3.2 Ambulance Service

Where casualties are involved or expected, the OiC should request the attendance of one or more ambulances, or confirmation that these have already been mobilised.

3.2.3.3 Garda Síochána

If there is no Garda Síochána attendance at an incident, the OiC should consider requesting their attendance. The Garda Síochána roles include helping with traffic or crowd control, contacting key holders, taking possession of valuables or securing buildings, or investigating where a crime is suspected.

3.2.3.4 Senior Officer

The OiC should consider requesting the attendance of a senior officer where:

- it is apparent that the situation is a major incident
- s/he is unsure of how to deal with the incident, or,
- brigade orders require the attendance of a senior officer.

3.2.3.5 Specialist Assistance

The OiC might need to consider requesting the attendance of specialists who may be in a position, by virtue of specialist training or equipment, to contribute to the rescue of persons involved or the control of unusual or difficult hazards.

3.2.3.6 Expert or Specialist Advice

The OiC may need to request advice from experts or specialists, where available (for example, in dealing with incidents involving hazardous materials).
3.2.3.7 Plant and Equipment

The OiC may need to request the attendance of contractors with plant or equipment (for example, a crane, or excavating equipment) to assist in operations.

3.2.4 Implement the Plan

Each incident attended by the Fire Service is unique and there is a need to develop an organisational structure on the fireground which will enable the OiC to achieve the objective(s) in an efficient, effective and safe manner. This structure must be tailored to the size of the incident.

It is not possible at large incidents for the OiC to take a hands-on approach to every facet of the incident. Therefore, it is critical that tasks are delegated, allowing the OiC to maintain an overall strategic view of the incident, concerning herself or himself with strategic and tactical responsibilities rather than task-oriented ones.

This approach allows the OiC to build up a unique organisation structure for the incident. This structure should also be put in place for smaller incidents and is developed from the bottom up.

In implementing the plan, the OiC should consider the scene of the incident as a number of sectors within which resources may be deployed. For example, in the case of a fire on the ground floor of a two-storey building, the fireground may be sectored as follows: (See Fig. 3.2.4A)

- the ground floor, where the fire is located,
- the first floor, above the fire,
- the area to the front of the building,
- the area to the left side of the building,
- the area to the right side of the building,
- the area to the rear of the building,
- adjoining buildings.
Figure 3.2.4A

Examples of Sectorisation

Sectorisation using floors in a building

Roof Sector
Sector 2
Sector 1
Ground Floor Sector

Main Entrance

Sectorisation around a building

Sector 3
Sector 2
Sector 4
Sector 1

Main Entrance
At a small incident, where operations may not involve all of the sectors which are identified by the OiC, s/he may be able to adequately control operations in all of the sectors involved and delegation of sectors may not be necessary. For instance at a typical semi detached housefire, the OiC can monitor tasks at front and back easily and there is unlikely to be a need to sectorise. However, if the house is mid terrace and there is no quick way from front to rear, then sectorising to the front and the rear of the building may be appropriate. Therefore in the case of a large or difficult incident, there are advantages for the OiC in assigning control of operations in the different sectors to sub-officers, or to officers on oncoming appliances. Delegating sectors in this way is particularly useful when the layout of the incident does not allow the OiC to effectively monitor all operations under her or his command.

Similarly, delegation of tasks or functions to other officers can allow the OiC to concentrate on the overall plan and monitor overall progress without devoting too much time to the detail of the individual tasks. Common tasks or functions which may be delegated by the OiC could include:

- water supply,
- search and rescue,
- safety,
- extrication of casualties,
- control of spread of fire to neighbouring buildings.

Delegating tasks or sectors to arriving officers allows a crew to be kept working as a unit. This facilitates teamwork and safety, and makes it easier to account for personnel.

There are a number of tasks or functional roles to which officers could potentially be assigned. The more important of these are listed at sub-section 3.7, along with an individual sheet giving a summary of the main functions provided for each role. Many of these would not be necessary, except at very specific incidents, and the OiC may well assign more than one function to the same person.

The role of the OiC, then, in implementing the plan, is to set up a system or structure for dealing with the incident and to exercise overall authority for operations. (See, for example, Figure 3.2.4.B)
FIGURE 3.2.4.B

Typical Command Structure at Large Building Fire with Three Sectors Identified

Officers should consider at all incidents - even at smaller, manageable incidents - how the scene could be sectored and what distinct tasks require attention. While the incident may be of such a scale that the OiC can control and supervise the complete operation (including any sectors and tasks identified), this approach allows for an effective arrangement and deployment of resources should the incident escalate and more resources be required. Use of this approach at the smaller incident also familiarises the officer with the concept, and facilitates its use at the larger or more complex incident.

Sectoring of command and control by location, task or function is essential at larger incidents, where a number of brigades are in attendance. This allows the OiC to designate officers and their crews to particular areas of the fireground or to particular tasks.

In deciding on the number of sectors or functions to be assigned to other officers, the OiC should bear in mind the value of keeping a manageable span of control, with a reasonable number of officers reporting - a span of control of approximately five officers may be considered the maximum acceptable.

Where there is a necessity for a greater number of sectors or functions, the OiC should consider introducing intermediate layer(s) of command (see Figure 3.2.4.C). These intermediate layers would generally include
operations such as rescue and fire-fighting, as well as support or logistics functions and liaison with other relevant bodies.

This may necessitate the establishment of forward control points within individual sectors, from which the sector officer controls operations within her/his sector.

The OiC should, when allocating areas of responsibility (sectors or functions) to other available officers, set out clearly the plan, and agree reporting arrangements and communications. Tactics to be employed in dealing with the sector or task may also be discussed, or may be left to the officer concerned. Officers charged with control of sectors or tasks should make regular reports to the OiC, keeping her or him informed of developments, progress and use of resources.

**Figure 3.2.4.C**

*Typical example of a command structure at a large building fire (with senior officer attendance and sectors and functions delegated and an intermediate command level)*
3.2.4.1 Orders

Crew members should be given tasks based on the plan for allocation of resources. The officer should give orders which are clear and unambiguous.

The officer should supervise the execution of orders, ensuring that tasks are carried out as given, and monitor progress and safety. S/he should ensure that s/he is kept informed of developments by regular progress reports from crew members.

3.2.4.2 Accounting for Personnel

An officer should at all times bear in mind the deployment of crew, and be able to account for all personnel under her or his command. At a large incident, responding crews should first report to a marshalling or rendezvous point, or to the incident control point, from where they should be deployed.

3.2.4.3 Review and Reassess

As the situation develops, a need may arise to adjust the plan in the light of new information, escalation of the incident, failure of the initial plan, etc. The OiC should watch for developments and should make changes - including changes in the structure adopted to control the incident - if necessary.

3.2.5 Close the Incident

When the tasks are largely complete, with rescues carried out and fires well under control, the OiC should consider how to bring the incident to a close. Considerations at this stage will include:

- confirming that all persons are accounted for and that casualties have received attention,
- ensuring final extinguishing of fires,
• ensuring safety, security and stability of structures,
• dealing with media representatives on site (in accordance with brigade policy),
• make up of equipment,
• reporting availability,
• return to station,
• restoring operational readiness,
• debrief of personnel,
• welfare of personnel,
• reports, pay sheets, etc.

Many of these items may be delegated by the OiC to other officers, where a number of officers are at the scene, or to crew members.

3.2.6 Summary

The sequence of activities in any command and control situation therefore is:

Assess - Plan - Resources - Implement - (Review) - Close

An illustrative example of the application of the sequence of activities detailed in 3.2.1 to 3.2.5 to a fire situation is given at 3.5.

3.3 Senior Officer Attendance

The Fire Service command system builds with the rank structure. Where a senior officer responds to an incident, s/he should be briefed by the OiC on arrival. Depending on circumstances, the senior officer may decide that the OiC should continue in command; the senior
officer should make the position clear. Where the senior officer decides to take control, this should also be made clear, and the senior officer who is taking over command should make a formal declaration to this effect. The former OiC will then operate under the command of the senior officer (now the OiC).

Incidents which are very complex or very large may stretch the possibility of effective supervision of resources. In this situation, sectoring of the command system will be introduced by the senior officer, with a corresponding range of sectors or functions assigned by the senior officer (now the OiC) to other officers.

Where the nature or scale of an incident is such that the OiC has to appoint a large number of sector or function officers to undertake specific tasks, it may also be appropriate to appoint intermediate layer(s) of command (see Figure 3.2.4.C). These intermediate layers would generally include operations such as rescue and fire-fighting, as well as support or logistics functions and liaison with other relevant bodies.

This may necessitate the establishment of forward control points within individual sectors, from which the officer commanding the sector controls operations within his/her sector.

3.4 Command and Control Skills

As a Fire Service officer, ability in the area of command and control is the main determinant of contribution to effective emergency operations. There are certain skills which should be developed and practised by officers.

3.4.1 Demeanour

At incidents you should at all times endeavour to be composed and calm, going about your business in a purposeful, organised manner rather than allowing the situation to overwhelm you. A confident, efficient OiC presents a good image of the Fire Service to the public, and also helps to keep crew members calm in potentially difficult situations.
3.4.2 Positioning

You should adopt a position on the fire ground which allows you an overview of the scene and the problem, maintaining sufficient remove to avoid being drawn into one aspect to the detriment of others. Your position should allow you to be seen when crew members or other officers need to speak to you, and to be heard when you wish to give orders or control activities. This involves a balance between being so close as to lose the big picture, and so far away as to lose control of crews or contact with other officers.

You should make your position known to other officers and crew members, and inform them if you are changing position.

3.4.3 Information Gathering

You should find out the important information about the emergency at an early stage so as to allow you to formulate an effective plan. The material at 3.2.1 above is intended to facilitate effective information gathering.

Information may be available from persons at the scene (owners, occupiers, managers, neighbours, passers by) who may be able to assist with information about persons reported. The OiC should try to establish the exact location of the fire or persons reported; a moment spent doing this may avoid a lot of unnecessary work or searching. A level of caution is required in relation to information received, and the OiC should obtain reports throughout the incident from crews to allow for a complete picture of the incident to be created, as well as evaluation of progress and change of plan if necessary.

3.4.4 Sizing Up

You should form an estimate of what resources are necessary to deal with different incidents. It is important to call for further resources at an early stage if they are required.
3.4.5 Briefing and Giving Orders

You should practice and review your ability to explain your plan or strategy to crew members or sub-officers. You should also practice and review your formulation of orders, so as to speed up and improve how you communicate your requirements to crew members or sub-officers.

3.4.6 Controlling Operations

It is important that you have control over operations on the fire ground, so as to deal effectively with the emergency and ensure the safety of your crew. Your job is to bring the incident to a satisfactory conclusion, achieving control over the situation in a structured way.

In general, the OiC should not become involved with work which is the role of the crew, but should concentrate on the command function unless an extremely urgent task presents itself and no crew member is available.

3.4.7 Flexibility

As an incident develops, you should be prepared to change your plan if necessary. Always examine the progress being made under your plan and revise the plan if the situation changes or fails to come under control.

3.4.8 Evaluating

You should review your own experiences as an OiC and identify where improvements can be made. Reviewing incidents you have attended in the past and reflecting whether you could have done things differently or more effectively helps you to form plans more quickly and efficiently for future situations.

You should also evaluate the performance of your crew, noting strengths and weaknesses, and following up, where appropriate (for example, after large or unusual fires), with acknowledgement of good work or improvement of performance through training.
3.5 Approach to Resolving an incident

Described here is the sequence of considerations for an OiC for a fire in a small commercial building as outlined in Figure 3.5.

![Small Commercial Building Fire](image)

3.5.1 Assess

On arrival at the incident scene, the officer-in-charge (OiC) is met by the building owner and informed of a fire in a store room in the building. From his or her own reconnoitre and from the owner, s/he gathers further information as follows:

- anybody in the building? - no
- any animals? - no
- where is the fire? - in store room to the right of entrance hall
- what is burning? - some cardboard boxes and wooden pallets
- risk of fire spread? - the building is detached; fire could spread to shop, internal door is closed at the moment
- any special risks? - no
- access to fire? - through front door and entrance hallway, or through rear door direct to store
Based on the information gathered, the OiC decides the main threats to crew members are from the fire and its products (smoke and heat), and from the potential for flash-over or backdraught.

3.5.2 Plan

The OiC formulates a plan for an offensive approach to the fire from inside the building (through the front door and entrance hallway), controlling and extinguishing fire in an outward direction, and ventilating through the external door (at the rear).

3.5.3 Resources

With an appliance and a crew of five available, the OiC decides to use two teams of two firefighters each, wearing breathing apparatus and using hose reels to deal with the fire in the store room.

S/he estimates that the personnel, equipment and water on the appliance should be sufficient to prevent spread and extinguish the fire.

As a precautionary measure, s/he decides to make down to a nearby hydrant, to supplement the water supply if necessary.

3.5.4 Implement

The scene can be regarded as a single sector - the building involved - and the OiC decides there is no need to delegate sectors or functions.

The OiC orders four crew members to don breathing apparatus and, using two hose reels, to surround the fire in two teams, one team entering through the entrance hall at the front of the building, and the second team providing ventilation by opening the rear door to the store when the first team is satisfied that the fire can be contained, and then also extinguishing the fire. The first team entering the store is to cool the space, using a water spray to prevent flash-over.

S/he also orders a water supply to be made down from the nearby hydrant to the appliance.
3.5.5 Review and Reassess

Supervising operations, the OiC monitors and reviews progress and safety of personnel, and is prepared to alter the plan if necessary. When the operation is proceeding successfully, the OiC sees no need to change the plan.

3.5.6 Completion

After a successful attack on the fire, the OiC:

- orders ventilation of the store to remove any remaining smoke,
- directs that breathing apparatus continue to be worn during damping down,
- inspects for any remaining hot spots or glowing embers and orders final damping down in the store to ensure that the fire is completely extinguished,
- checks elements of the building which have been exposed to the fire, and other parts of the building for any spread of fire or smoke,
- orders a make up of all equipment, and,
- returns to the station with the crew,
- oversees restoration of operational readiness,
- debriefs personnel where appropriate,
- sees that welfare needs are met,
- completes necessary paperwork.

3.6 Major Emergencies

3.6.1 Introduction

An emergency may be a small incident which is dealt with by an individual without outside help, or may be of a scale which requires the assistance of one or more of the emergency services (fire service, Garda Síochána, ambulance). Incidents can and do occur, however, which are more serious or widespread in their effects. Such incidents are called Major Emergencies and may be defined as follows:-
A Major Emergency is any event which, usually with little or no warning, causes or threatens death or injury, serious disruption of essential services, or damage to property beyond the normal capabilities of the Garda Síochána, local authorities (including fire authorities) and health services.

An incident can be declared a major emergency by a local authority, the Garda Síochána or health board. Certain officers within each agency are authorised to declare that a Major Emergency exists (or is imminent). Examples of incidents which may constitute a Major Emergency include

- flooding or severe weather conditions which disrupt essential services and/or transport,

- a road traffic accident involving a bus carrying a large number of passengers who sustain serious injuries,

- a fire at a large oil storage installation or oil refinery which could involve a serious threat to life and/or a serious threat to fuel and power supplies in the country,

- a large-scale spill or leak of hazardous materials which may endanger life on a wide scale and/or threaten water supplies or property,

- a building collapse involving many trapped persons.

3.6.2 Co-ordination at the Scene of Major Emergencies

Such an occurrence may require the mobilisation and co-ordination of a variety of agencies and voluntary organisations. Response may include, in addition to the normal emergency response agencies, fire services of the local authorities, Garda Síochána, ambulance services of the health boards, other local authority personnel, Civil Defence, Defence Forces, transport or other utilities, industrial advisors, experts in various fields, specialist contractors, plant hire companies and others.
Efficient organisation and co-ordination of numerous agencies and personnel at the site of an emergency would be difficult to achieve without having made some plans and arrangements in advance. To this end local authorities, Health Boards and the Garda Síochána have prepared detailed plans for use in mobilising, co-ordinating and controlling operations at a Major Emergency.

The combined plans are called Major Emergency Plans and they lay down procedures for

- activation of the plan
- control of operations at the site of the emergency
- communications and co-ordination remote from the site
- demobilisation
- media, press and information.

Central to an understanding of response to Major Emergencies is an appreciation that a Major Emergency Plan is a pre-planned scaled up response to emergencies that cannot be handled by the emergency services on their own.

As part of the response to a Major Emergency, specific functions are assigned to each of the main emergency service agencies.

Functions of the local authority include:

- activation of the Plan,
- extinction of fires,
- protection and rescue of persons and property,
- containment, neutralisation and clearance of chemical spills and emissions,
- maintenance of local authority services during the emergency,
- provision of access to the site,
- forensic support for Garda Síochána,
- advice on evacuation,
- accommodation and welfare of evacuees and persons displaced by the emergency,
- site clearance, demolition, clean-up operations, removal and disposal of debris,
• provision of food and rest facilities for personnel responding to the emergency,
• control and direction of activities of all agencies within the Danger Area at an emergency,
• participation in a Co-Ordinating Group.

Functions of the Garda Síochána include:

• activation of the Plan,
• maintenance of law and order,
• evacuation,
• traffic and crowd control,
• preservation of the scene and collection of evidence *,
• arrangements in respect of the dead,
• provision of a casualty information service at the site,
• establishment at the site of an information centre for use by the agencies responding to the emergency,
• arrange for emergency telephone service, if necessary, in accordance with pre-determined arrangements,
• securing the site and layout thereof and controlling access thereto,
• exercise of certain local authority functions pending a local authority response to an emergency,
• informing the public as necessary and on the advice of the competent authorities of actual or potential disasters arising from the emergency,
• participation in a Co-Ordinating Group.

*Precedence should only be given to this activity where it will not interfere with the activities of agencies responding to an emergency which are concerned with the protection of life and the prevention and treatment of casualties.

Functions of the Health Board include:

• activation of the Plan,
• provision of all health services,
• provision of medical advice and assistance,
• assessment of casualties and determination of priorities for their evacuation,
• casualty evacuation and ambulance transport,
• certification of the dead and provision of forensic support for the Garda Síochána,
• provision of first aid, together with basic life support and treatment at the scene if required,
• provision of hospital treatment including psychiatric assistance,
• provision of community, medical and welfare services,
• participation in a Co-Ordinating Group.

Clearly, the discharge of all of these functions under possibly very difficult conditions of a major emergency is a large and complex task, and considerable resources need to be mobilised in addition to the normal day-to-day resources of the emergency services. The need to have an effective Major Emergency Plan in place to allow the task to be carried out efficiently and to co-ordinate the large numbers of personnel involved is also clear.

3.6.3 Fire Service Response

In many cases, the local fire brigade will be one of the first emergency services to attend at an emergency and the officer-in-charge (OiC) will be the person initially appraising the incident. While it may be apparent to the OiC that the incident will require resources beyond the normal capabilities of the emergency services, it is practice in most local authorities that only certain designated senior officers of the authority are empowered to activate the Major Emergency Plan.

Fire officers should find out in advance the arrangements in place for declaring major emergencies in their authorities, and the names and contact arrangements for designated officers. These usually include the CFO, ACFOs or rostered senior officer on duty or designated members of local authority administrative or engineering staff. In the event of being mobilised to an incident which clearly is or could potentially be a Major Emergency, the OiC should contact one of these officers and provide details of the situation as they know it. The briefing to the senior officer should include general information on the incident of the
type shown in the First Message Format in paragraph 3.2.3.1 above, as well as assessments of the four areas listed below:

- damage,
- casualties,
- response,
- threats.

The senior officer may then activate the Major Emergency Plan immediately and mobilise further resources, or s/he may proceed to the incident site prior to activating the Plan.

On arrival, the senior officer of the fire brigade would generally assume command of the incident, and the first attendance officer would then operate under his or her direction. The senior fire officer may exercise the role of Local Authority Controller of Operations.

Having alerted senior personnel to the situation, the first attendance officer and crew may be for a time the only emergency service attending at a Major Emergency. Rescues and fire-fighting may demand immediate attention and occupy all of the available personnel. The first attendance officer should however try to give some thought to the vehicles and personnel who will be responding, what approach routes would be best, where to set up holding areas etc., and transmit this information to control. A model site layout has been recommended which provides for holding areas for responding personnel, control centres, casualty area, ambulance loading points, etc. This layout is shown at Figure 3.6.3.A and could be borne in mind when locating appliances, emergency tenders, etc. It is appreciated however that this model layout cannot be used in every case, due to conditions on site, topography, communications difficulties, etc. Officers in subsequent response vehicles should ensure that they obtain appropriate instructions for rendezvous points and marshalling areas etc.

At an incident involving hazardous materials it may be necessary to declare a **Danger Area** and to prevent persons approaching the hazard unless equipped with proper protective clothing and equipment.

Communications and information flows are of vital importance in co-
ordinating any effective response to an emergency. By definition, the scene at a major emergency will be confused and chaotic, and may be widespread, which makes information flow difficult, even within normal chains of command. Despite what may appear as overwhelming demands and tasks, the officer needs to bear in mind that one of the most useful functions at this stage is observing and compiling information under the damage, casualties, response and threats headings. If all front-line crews assemble information, and report it onward in their chain of command, then the senior officers may be able to assemble a more complete picture of the incident, and manage it better. A form to assist in this task is provided in Figure 3.6.3.B. This is intended as a supplement to the First Message Format shown in Figure 3.2.3.1.

It is also recommended that a particular Fire Service vehicle be designated at an early stage to be the command point and communications vehicle. This would be the centre for managing Fire Service and local authority communications at the emergency site. This may be a special communications vehicle, or one of the appliances or emergency tenders fitted with radio could be nominated for the purpose.

A means of identifying the communications vehicle should be considered; this is often done by turning off the blue flashing lights on other fire service vehicles while keeping those of the communications vehicle in operation.
Figure 3.6.3.A

Recommended Site Layout for Major Emergency Response (not to scale)

(adapted from Emergency Planning: Framework for Co-ordinated Response to Major Emergency, issued by Inter-Departmental Committee for Peacetime Emergency Planning, November, 1984)
**MAJOR EMERGENCY INFORMATION GATHERING FORM**

<table>
<thead>
<tr>
<th>Damage</th>
<th>Casualties</th>
<th>Response</th>
<th>Threats</th>
</tr>
</thead>
</table>

Signed: _____________________________

Information Passed to: _____________________________

Time of Dispatch: _____________________________
3.7 Task Sheets for Functional Roles

This section contains guidance for personnel who may be appointed by the OiC at an incident to carry out specified functions. The following list indicates the roles dealt with. It should be noted that an individual may be assigned one or more of the following tasks simultaneously.

- OiC First on Scene
- Incident Commander
- Sector Officer
- Control Point Officer
- Boarding Officer (Ship)
- Breathing Apparatus Officer
- Chemical Officer
- Communications Officer
- Decontamination Officer
- Embarkation Marshal
- Engineering Officer
- Equipment Officer
- Foam Officer
- Incident Investigation Officer
- Liaison Officer
- Media/Press Officer
- Radiation Officer
- R/V Marshalling Officer
- Safety Officer
- Salvage Officer
- Stability Officer
- Water Supply Officer; and
- Welfare Officer.
OiC - FIRST ON SCENE

TASKS

1. OBTAIN FACTS - GAIN INFORMATION.
2. LIAISE WITH OTHER EMERGENCY SERVICES AT SCENE.
3. ASSESS FIRE AND RESCUE SITUATION - PRIORITISE.
4. INSTIGATE INITIAL FIRE FIGHTING AND RESCUE RESPONSE.
5. CONSIDER: RESCUES
   FIRE FIGHTING - LOCATION AND NO. OF JETS.
   WATER SUPPLIES
   LIKELY FIRE SPREAD
   NATURE OF RISK
   MANPOWER
   SALVAGE
   SPECIAL APPLIANCES
6. SEND "ASSISTANCE/INFORMATIVE" MESSAGE.
7. RECONNAISSANCE.
8. RE-ASSESS PLAN OF ACTION.
9. CONSIDER PRE-FIRE PLAN INFORMATION.
10. ESTABLISH COMMUNICATIONS NETWORK.
11. ASSUME RESPONSIBILITY FOR SAFETY - ADVISE OTHERS.
12. NOTE KEY POINTS AND TIMES - FOR INVESTIGATION REPORT.

REMEMBER

- YOU ARE THE FIRE OFFICER IN CHARGE UNTIL RELIEVED
- YOU MUST BRIEF THE SENIOR FIRE OFFICER ON HER/HIS ARRIVAL
INCIDENT COMMANDER (OiC)

TASKS

1. OBTAIN FACTS FROM OFFICER IN CHARGE.

2. CARRY OUT RECONNAISSANCE.

3. **TAKE COMMAND** FORMALLY - APPOINT ASSISTANT.

4. LIAISE WITH OTHER SERVICE COMMANDERS.

5. DECIDE TACTICAL PLAN.

6. REQUEST RESOURCES TO ACHIEVE PLAN.

7. APPOINT & BRIEF SECTOR OFFICERS/FUNCTIONAL OFFICERS & RECORD (SEE OVER)

8. LIAISE WITH CONTROL UNIT & OPERATIONS COMMAND CENTRE.

9. CONFIRM INNER CORDON OK

10. ESTABLISH FORWARD CONTROL POINT(S).

11. CONSIDER NEED FOR FIRE SERVICE CORDON.

12. LIAISE WITH SUPPORT ORGANISATIONS.

13. REVIEW TACTICAL PLAN & RE-ASSESS RESOURCES & NEEDS.
<table>
<thead>
<tr>
<th>Sector/Function</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial OiC</td>
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<td>1 Sector Officer</td>
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<td>2 Sector Officer</td>
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<tr>
<td>3 Sector Officer</td>
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<td>4 Boarding</td>
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<td>12 Incident Investigation</td>
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<td>13 Foam</td>
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<td>14 Liaison</td>
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<td>17 R/V Marshalling</td>
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<td>20 Stability</td>
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<tr>
<td>21 Water</td>
<td></td>
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<tr>
<td>22 Welfare</td>
<td></td>
</tr>
</tbody>
</table>
SECTOR OFFICER

TASKS

1. RESPONSIBLE TO INCIDENT COMMANDER.

2. IMPLEMENT TACTICAL PLAN WITHIN DESIGNATED AREA.
   BE - ACCURATE;
       BRIEF;
       CLEAR.

3. LIAISE WITH SPECIALIST TASK OFFICERS AND OTHER SERVICE
   COMMANDERS AT APPROPRIATE LEVEL (e.g. Garda Síochána).

4. LIAISE WITH CONTROL POINT AND FORWARD CONTROL POINT.

5. SUPERVISE OFFICERS AND CREW WITHIN SECTOR.

6. ASSESS EFFECTIVENESS OF TACTICAL PLAN.
   CONSIDER - PROGRESS;
               NEW INFORMATION;
               RESOURCE REQUIREMENTS;
               NEED FOR CHANGE.

7. BRIEF INCIDENT COMMANDER.
CONTROL POINT OFFICER

TASKS

1. CONFIRM SITING OF CONTROL UNIT (SAFE, VISIBLE, ACCESSIBLE)

2. OBTAIN BRIEFING FROM CONTROL POINT STAFF.

3. ESTABLISH AND MAINTAIN LIAISON WITH INCIDENT COMMANDER, SECTOR COMMANDERS AND/OR FUNCTIONAL OFFICERS.

4. MAINTAIN CONTROL POINT INFORMATION BOARDS, INCL. NOMINAL ROLLS, OFFICERS DUTIES, OTHER SERVICES ETC.

5. MANAGE INFORMATION FLOW WITHIN THE CONTROL POINT.

6. SUPERVISE CONTROL POINT STAFF.

7. MAINTAIN CONTACT WITH FORWARD CONTROL POINT(S).

8. LIAISE WITH OPERATIONS COMMAND CENTRE AND FIRE CONTROL CENTRE.

9. LIAISE WITH OTHER SERVICES.

10. PLAN FOR RELIEF CREWS, TRANSPORT, ADDITIONAL SUPPORT etc.

11. PRODUCE SITE PLAN.

12. MAINTAIN LOG OF INCIDENT.
BOARDING OFFICER

TASKS
1. TO MAINTAIN THE OPERATIONS BOARD.
2. MAINTAIN A PLAN OF FIRE-FIGHTING.
3. MONITOR USE OF LIFEJACKETS.
4. SUPERVISE BOARDING TALLIES.
5. MAINTAIN NOMINAL ROLL.
6. CONSIDER WELFARE.
7. SUPERVISE TRANSFER OF EQUIPMENT.
   MAINTAIN COMMUNICATIONS.

BREATHING APPARATUS OFFICER

TASKS
1. ENSURE B.A. MAIN CONTROL IS CORRECTLY SITED.
   (SAFE; ACCESSIBLE; VISIBLE; COMMUNICATIONS.)
2. ESTABLISH & MAINTAIN COMMUNICATIONS BETWEEN B.A.
   MAIN CONTROL & STAGE II CONTROLS REF: MANPOWER, B.A.
   SETS, etc.
3. ENSURE B.A. MAIN CONTROL BOARD MAINTAINED UP TO
   DATE.
4. MEET REQUIREMENTS OF STAGE II CONTROLS REF: MANPOWER,
   B.A. SETS, etc.
5. MAINTAIN EMERGENCY TEAM ON STANDBY.
6. MEET REQUIREMENTS FOR RELIEF CREWS.
7. MEET SERVICING NEEDS.
   REQUIRE - CLEAN AREA;
   CYLINDERS;
   DISINFECTANT;
   RECORD KEEPING.
8. MONITOR WELFARE OF CREWS.
9. BRIEF INCIDENT COMMANDER AS APPROPRIATE.
CHEMICAL OFFICER

TASKS

1. CONFIRM NATURE OF HAZARD.
2. CONFIRM APPROPRIATE PROTECTION MEASURES.
3. CONFIRM APPROPRIATE DECONTAMINATION PROCEDURE.
4. ARRANGE TO PREVENT/LIMIT SPREAD OF CHEMICALS.
5. BRIEF INCIDENT/SECTOR COMMANDER.
6. LIAISE WITH DECONTAMINATION OFFICER.
7. LIAISE WITH OTHER SERVICES.
8. MONITOR WEATHER CONDITIONS.
9. CONSIDER POLLUTION HAZARD - LIAISE WITH OFFICERS OF LOCAL AUTHORITY.
10. ENSURE CORRECT RECORD KEEPING.
COMMUNICATIONS OFFICER

TASKS

1. LIAISE WITH INCIDENT COMMANDER AND ALL OFFICERS.

2. CONFIRM COMMUNICATION RESOURCES.

3. REQUEST ADDITIONAL EQUIPMENT AS NECESSARY.

4. ESTABLISH COMMUNICATIONS NETWORK & SKETCH.

5. LIAISE WITH CONTROL UNIT AND FORWARD CONTROL POINT.

6. CONFIRM LINKS WITH FIRE CONTROL - RADIO MOBILE PHONE PSTN

7. LIAISE WITH OTHER SERVICES.

8. ESTABLISH BATTERY CHARGING PROGRAMME.

9. ARRANGE FOR SPARES AND REPLACEMENTS.

10. REVIEW EFFECTIVENESS OF COMMS NETWORK.
DECONTAMINATION OFFICER

TASKS

1. LIAISE WITH INCIDENT COMMANDER & SECTOR COMMANDERS.

2. LIAISE WITH CHEMICAL OR RADIATION OFFICER.

3. SELECT APPROPRIATE DECONTAMINATION PROCEDURE.

4. SELECT DECONTAMINATION ZONE:
   - CONSIDER - SLOPE OF GROUND
     SCENE OF OPERATIONS
     WIND DIRECTION
     HARD STANDING
     ACCESS
     WATER SUPPLIES
     SPACE

5. ENSURE SUFFICIENT EQUIPMENT & MANPOWER.

6. CONSIDER POLLUTION HAZARD - LIAISE WITH OFFICERS OF LOCAL AUTHORITY.

7. IMPLEMENT & CONTROL DECONTAMINATION.
EMBARKATION MARSHAL

TASKS

1. SUPERVISE ALL QUAYSIDE ACTIVITIES.

2. ESTABLISH & MAINTAIN COMMUNICATIONS WITH FIRE CONTROL.

3. LIAISE WITH HARBOURMASTER & TRANSPORTATION CRAFT.

4. SUPERVISE FIRE FIGHTING PACKS.

5. SUPERVISE TRANSPORTATION OF PERSONNEL.

6. SUPERVISE NOMINAL ROLL.

7. OFF LOADING OF EQUIPMENT DISEMBARKATION OF PERSONNEL.

8. PARKING & SECURITY OF VEHICLES.

ENGINEERING OFFICER

TASKS

1. LIAISE WITH INCIDENT COMMANDER AND EQUIPMENT OFFICER.

2. ESTABLISH SERVICING PROGRAMME.

3. CO-ORDINATE REFUELLING AND LUBRICATION ARRANGEMENTS.

4. ENSURE PROMPT REPLACEMENT OF DEFECTIVE EQUIPMENT.

5. ESTABLISH RESERVE STOCK OF FUEL, SPARES ETC.

6. MAINTAIN RECORD OF ACTION TAKEN.

7. MONITOR USE OF APPLIANCES AND EQUIPMENT.
## EQUIPMENT OFFICER

### TASKS

1. LIAISE WITH INCIDENT COMMANDER, SECTOR COMMANDERS AND/OR SPECIALIST OFFICERS.

2. CONFIRM EQUIPMENT REQUIREMENTS.

3. ESTABLISH EQUIPMENT HOLDING AREAS.

4. MONITOR LOCATION OF EQUIPMENT AND AVAILABLE RESERVES.

5. CO-ORDINATE RE-STOWAGE OF APPLIANCES.

6. RECORD LOCATION AND TYPE OF ANY EQUIPMENT LEFT ON SCENE.
# FOAM OFFICER

## TASKS

1. Liaise with Incident Commander, Sector Commanders and/or Specialist Officers.

2. Assess scale of operations;

3. Consider: Wind direction, slope of ground, water courses, arrival time of equipment.

4. Decide plan of attack.

5. Estimate foam concentrate required; Consider: Flashpoint, area (m²), hydrocarbon or polar solvent.

6. Estimate foam equipment required.

7. Estimate water required.

8. Liaise with local authority officers re pollution.


10. Maintain escape routes for crews.

11. Minimise contamination of crew by substance underfoot.
## INCIDENT INVESTIGATION OFFICER

### TASKS

1. **CARRY OUT AN INVESTIGATION OF THE INCIDENT TO DETERMINE A SUPPOSED CAUSE.**

2. **LIAISE WITH INVESTIGATING OFFICERS FROM OTHER SERVICES, PARTICULARLY GARDA SÍOCHÁNA SCENES-OF-CRIME OFFICER.**

3. **MAKE APPROPRIATE RECORDS OF THE SCENE TO FACILITATE PREPARATION OF REPORT.**

4. **RECORD THE SITE; OPERATIONAL DETAILS; EQUIPMENT USED; PROCEDURES; RESOURCES; LOCATION OF CASUALTIES; MANPOWER USED;**

5. **INTERVIEW ALL APPROPRIATE PERSONS TO ENABLE COLLECTION OF RELEVANT INFORMATION.**

6. **CONSIDER NEED FOR WRITTEN STATEMENTS FROM FIRE SERVICE PERSONNEL AND OTHERS.**

7. **MAINTAIN APPROPRIATE BRIEFINGS TO INCIDENT COMMANDER.**

8. **PREPARE INCIDENT REPORT.**
# LIAISON OFFICER

**TASKS**

1. Establish effective co-ordination with other services.
2. Liaise with incident commander. Obtain directions, maintain briefings.
3. Represent incident commander at meetings with other services.
4. Advise other services of fire brigade actions and priorities.
5. Identify and co-ordinate areas of mutual interest e.g. operational tasks, welfare etc.
6. Identify and resolve any areas of possible conflict between services.
7. Liaise with incident control unit, maintain awareness of incident progress.
8. Maintain record of principal actions and discussions.
MEDIA / PRESS OFFICER

TASKS

1. SERVE AS THE INITIAL CONTACT FOR ALL MEDIA RELATIONS.

2. LIAISE WITH INCIDENT COMMANDER. OBTAIN DIRECTIONS, MAINTAIN BRIEFINGS.

3. MAINTAIN AWARENESS OF BRIGADE OPERATIONS, PARTICULARLY DEPLOYED RESOURCES AND KEY PERSONNEL.

4. LIAISE WITH OTHER SERVICE'S MEDIA OFFICERS. AGREE JOINT APPROACH. ESTABLISH MEDIA CENTRE. REPRESENT FIRE BRIGADE AT MEDIA BRIEFINGS.

5. LIAISE WITH INCIDENT CONTROL UNIT AND OPERATIONS COMMAND CENTRE.

6. MONITOR MEDIA REPORTS, MAINTAIN RECORDS WHERE POSSIBLE. CORRECT ANY INACCURACIES.
RADIATION OFFICER

TASKS

1. CONFIRM NATURE OF HAZARD:
   A) TYPE OF EMITTER - ALPHA - BETA - GAMMA.
   B) STRENGTH OF SOURCE.
   C) SEALED OR UNSEALED.
   D) SHIELDED OR UNSHIELDED.
   E) PHYSICAL STATE - GAS - LIQUID - SOLID.
   F) LOCATION AND DESCRIPTION.

2. CONTACT WITH RADIOLOGICAL PROTECTION INSTITUTE OF IRELAND & LIAISE WITH SPECIALIST ADVISORS.

3. BRIEF INCIDENT COMMANDER.

4. ESTABLISH RESTRICTED AREA.

5. USE APPROPRIATE METERING AND PROTECTION.

6. CO-ORDINATED DECONTAMINATION.

7. CONSIDER POLLUTION HAZARD

8. IMPLEMENT & CONTROL DECONTAMINATION.
R/V MARSHALLING OFFICER

TASKS
1. LIAISE WITH INCIDENT COMMANDER AND GARDA SÍOCHÁNA.
2. IDENTIFY/ESTABLISH MARSHALLING AREA AND RENDEZVOUS POINTS.
3. MAINTAIN COMMUNICATION LINK WITH CONTROL UNIT.
4. CO-ORDINATE VEHICLE PARKING.
5. BRIEF CREWS AS NECESSARY.
6. DEPLOY RESOURCES AS REQUESTED.
7. MONITOR SECURITY OF UNATTENDED VEHICLES.

SAFETY OFFICER

PRIMARY TASKS
1. LIAISE WITH INCIDENT COMMANDER MAINTAIN COMMUNICATIONS.
2. ENSURE SAFETY OF ALL PERSONNEL UNDER FIRE SERVICE DIRECTION.
3. SET THE STANDARD.
4. ASSESS SCALE OF OPERATION & LEVEL OF SAFETY SUPERVISION REQUIRED.
5. CONSIDER CONTAMINATION BY: BODY FLUIDS;
   ASBESTOS;
   CHEMICALS;
   RADIATION.

SECONDARY TASKS
1. MONITOR PERSONAL PROTECTIVE EQUIPMENT.
2. CONSIDER - LIGHTING;
   DECONTAMINATION EQUIPMENT;
   WELFARE.
3. ASSESS FOR STABILITY/SIGNS OF COLLAPSE.
4. NOTE HAZARDOUS MATERIALS.
5. CORDON HAZARDOUS AREAS.
6. ESTABLISH FIRST AID POST.
7. MONITOR WORKING PRACTICES.
## SALVAGE OFFICER

### TASKS

1. **CONFIRM** - TYPE OF BUILDING(S); USE; CONTENTS; VALUABLE ITEMS; AREAS AT RISK.

2. CHECK ANY PRE-PLANNING ARRANGEMENTS. LIAISE WITH OCCUPIER.

3. **CONSIDER** - FIRE FIGHTING TACTICS; FIRE SPREAD; POSSIBLE WATER DAMAGE; POSSIBLE COLLAPSE; PRIORITIES; STORAGE/PROTECTION OF SALVAGED ITEMS.

4. LIAISE WITH INCIDENT COMMANDER.

5. **FORMULATE SALVAGE PLAN.** REQUEST NECESSARY MANPOWER AND EQUIPMENT.

6. IMPLEMENT PLAN - MONITOR PROGRESS. REVIEW AND AMEND AS NECESSARY.

7. **CHECK SAFETY OF SALVAGE TEAMS.**
STABILITY OFFICER

TASKS

1. MAKE CONTACT WITH SHIP DUTY OFFICER.

2. CONFIRM STATE OF VESSEL:
   - DOUBLE BOTTOM TANKS
   - BALLAST TANKS
   - FUEL TANKS
   - CARGO MANIFEST
   - DIAGRAMS OF VESSEL
   - FIRE WALLET

3. ESTABLISH STABILITY POINT - CONFIRM LOCATION WITH INCIDENT COMMANDER & CONTROL POST.

4. MAINTAIN STABILITY BOARD.

5. ADVISE INCIDENT COMMANDER.

6. MAINTAIN SUPERVISION OF STABILITY CREW.
WATER SUPPLY OFFICER

TASKS

1. ESTIMATE QUANTITY OF WATER REQUIRED.

2. DETERMINE AVAILABLE WATER SUPPLIES.
   CONFIRM: - LOCATION QUANTITY ACCESS

3. CHECK PRE-PLANNING ARRANGEMENTS.

4. DETERMINE BEST MEANS OF DELIVERING WATER TO INCIDENT
   - RELAY OR SHUTTLE.

5. ADVISE INCIDENT COMMANDER. IMPLEMENT PLAN.

6. CONFIRM EFFICIENT USE OF WATER SUPPLIES.
   CHECK LOCATION OF PUMPS, PUMP OPERATION.
   USE OF JETS, TWINNED HOSE, NOZZLE SIZES.

7. LIAISE WITH ENGINEERING OFFICER REF:
   RESERVE PUMPS, SPARES, REPAIRS ETC.

8. LIAISE WITH OTHER APPROPRIATE TASK OFFICERS.

9. MONITOR RADIO COMMUNICATIONS FOR WATER
   RELAY/SHUTTLE.

10. LIAISE WITH WATER SERVICES
# WELFARE OFFICER

## TASKS

1. **LIAISE WITH INCIDENT COMMANDER AND OTHER ORGANISATIONS:**
   - GARDA SÍOCHÁNA,
   - LOCAL AUTHORITY,
   - HEALTH SERVICES

2. **CONFIRM ARRANGEMENTS FOR PERSONNEL REF:**
   - REFRESHMENTS,
   - REST/SHelter,
   - W.C.
   - DEBRIEF,
   - RELIEF.

3. **IDENTIFY ANY SHORTFALLS IN WELFARE ARRANGEMENTS. INSTIGATE MEASURES TO RESOLVE PROBLEMS.**

4. **MONITOR CREWS’ PHYSICAL AND PSYCHOLOGICAL WELFARE. INITIATE ACTIONS TO FULFIL ANY PERCEIVED NEEDS.**

5. **MAINTAIN APPROPRIATE BRIEFINGS TO INCIDENT COMMANDER.**
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Section 4. Brigade and Operational Procedures

4.1 Introduction to Brigade and Operational Procedures

This section of the handbook sets out some common procedures which are employed in fire brigade operations, as well as some other standard procedures which have evolved.

As discussed in Section 3.2 the OiC, having first assessed the situation, needs to formulate a plan or strategy to deal with any incident. The procedures presented here are intended to assist the OiC in her or his work by acting as an aide-memoire in formulating a plan for less common situations which may be encountered.

Fire authorities may wish to consider whether this material is appropriate for local circumstances, and may amend material, add appropriate material, or exclude material from handbooks circulated within the authority.

4.2 Operational Procedures for Fires

The Operational Procedures are in general set out in a three-part format.

In the first part, the potential hazards associated with the situation are listed.

In the second part recommended actions for the OiC are described. Not all of these will be necessary or appropriate in any given situation, and the OiC should continue to exercise her/his own judgement of actions to be taken in light of the circumstances.

In the third part, issues which may require consideration by the OiC are noted.
4.2.1 Fires and Fire-Fighting Tactics

Hazards
(to building occupants, firefighters, others)

- Heat.
- Toxic or harmful atmosphere.
- Structural failure.
- Flash-over or backdraught.

Actions

Protect, remove and rescue persons.
Ensure crew safety.

Stop the fire:
- Offensive strategy - when fire is small and can be attacked directly before it spreads. Hose lines inside building.
- Defensive strategy - when volume of fire and number of exposures precludes anything but defensive techniques. Hose lines outside building.
- Offensive-defensive - when scale of fire and resources allows both the fire to be attacked and exposures to be protected. Used in the case of a developed fire. Hose lines outside building.
- Defensive-offensive - when defensive approach is necessary to contain fire while awaiting arrival of additional resources.

Prevent damage to property
- Reduce secondary damage (from smoke, water, etc.)
- Ensure fire is completely extinguished - avoid re-ignition.

Limit environmental damage as far as reasonably practicable.

Tactics

Site equipment so as to:
- Mount the most effective attack on the fire.
- Protect surrounding property from spread of fire.
- Limit spread of fire within a compartment, section or floor of the affected building.

Hose placement:
- Initial lines of hose can be advanced inside building to control access to hall, stairway or other channels through which people or fire can travel.
- Interior and back-up lines can be deployed to extend this initial control.

Water jets or sprays:
- First jet between fire and persons endangered by it - protect victims first, then protect their means of escape.
- If no life endangered, first jet between fire and most severely endangered exposure.
- Second jet to back up first jet or protect egress (especially where first jet working on upper floor or team searching on upper floor).
- Place additional jets to support attack positions.

Support activities:
- Ventilation
  - prevents mushrooming, facilitates entry, increases safety, improves operations, controls damage.
  - ventilate only on instruction of OIC
- horizontal, vertical, mechanical, hydraulic (water spray)
- control fire before ventilation.
- Provision of access - forcible entry, removal of barriers (security or construction)
• Tactical positioning - forecast fire travel
  - move crews into position from the unburned side
  - open up the structure
  - cut off the fire.

Considerations

Where is the fire?
What is burning? - what extinguishing medium should be used?
Where can the fire spread? - what exposures should be protected?
Is there an imminent risk of fire spread?
  (Fire will spread: upwards at high speed
  sideways at low speed
  downwards very slowly.)

What access routes are available to the fire?

Other Considerations

Time
• night time occupancy vs. day time occupancy
• darkness - lighting
• traffic density
• week days, Sundays, holidays

Weather
• rain
• wind (speed and direction)

Height
• Will available ladders reach?
• What are alternatives?
• Can outside jets penetrate upper floors effectively?

Area
• large fire areas require large volumes of water
• is the area protected by automatic sprinklers?

Occupancy
• What purpose is the building used for?
• What process and materials does it house?
• Change in occupancy may also involve structural alterations
  which may weaken the building.

Internal protection
• Does the building have inherent fire resistant construction?
• Does the building have active systems such as sprinklers,
  flooding systems?

Water supplies
• Is there adequate water supply?
• What is the mains capacity for optimum use of hydrants?

Apparatus
• How many pumps are required?
• Are aerial ladders or platforms required?
• Are special tenders required?

Fire fighting personnel
• How many crews are required?
• What officers or functions does the incident necessitate?
• Back-ups and reliefs?

Terrain
• Topography
• Street conditions, cul de sac, steep hills
• Traffic conditions, road works.
4.2.2 Chimney Fires

**Hazards**

- Spread of fire from chimney to rest of building - especially thatch.
- Possibility of falls if personnel working on roof.
- Spread of fire to neighbouring buildings (hot brands carried by wind).
- Burns from falling debris inside chimney.
- Steam burns.

**Actions**

- Protect floor coverings from door to fireplace.
- Identify correct chimney and associated fireplace or appliance.
  (Look for increased draught in chimney or falling soot; listen for roaring sound of fire.)
- **Preferably, attack fire from the fireplace/grate.**
- Alternatively, access chimney above the fireplace (e.g. on an upper floor).
- Extinguish fire in grate or appliance.
- Use bucket and stirrup pump with chimney rods to extinguish fire in flue.
- Gather soot and debris which may fall from the chimney, place in a non-combustible container and remove from the building.
- Clean out soot boxes and chambers behind solid fuel cookers and back-boilers.
- **If necessary to fight fire from the roof:**
- Monitor safety of working area.
- Call for an aerial appliance if access is dangerous.
- Identify correct chimney. (Look for heat from fire, sparks, noise, etc.)
- Do not apply water to hot chimney pots. (Possibility of explosive shattering.)
- Apply water to fire using hose reel.
- Co-ordinate personnel on the roof and at the fireplace. (Use radios.)
- Avoid water damage and confirm fire extinguished.
• **When fire has been extinguished**, examine rooms adjacent to the chimney at all levels (including attics) in the building, looking for smoke, embers, sparks, or heat in walls, ceilings or floors. If the chimney is near a separating wall, the adjoining building should be inspected also.

• When it is certain that the fire is extinguished, leave the building clean, tidy and dry.

• Advise householders to leave the chimney to cool for four-to-five hours, and be alert for possible re-ignition.

**Considerations**

• After extinguishing the fire in the fireplace, use a mirror and hand lamp to inspect the chimney and locate the fire in the flue.

• Use water carefully and sparingly.

• Move furniture clear of the fireplace or working area.

• Minimise damage to carpet, finishes or building contents. (Use salvage sheet and carpet protector.)

• If working on roof, avoid damage to slates, tiles, or brickwork.

• Modern chimneys will normally serve only one room or fireplace, older chimneys may serve more than one.

• Where the affected chimney serves more than one room or fireplace, watch for falling debris, soot or fire spread in the other flues or in rooms or appliances served.
4.2.3 Small House Fires

**Hazards**

- Domestic gas (mains and cylinders) and electricity.
- Build-up of gas from foam furniture - potential for explosion.
- Backdraught, flashover, leading to window blow out.
- Television tube explosion.
- Hazards to onlookers (neighbours, children, etc.)

**Actions**

- Stop at a reasonable distance from the house.
- Gather information from the householder.
- Check if all persons are accounted for.
- Ask about pets.
- Quick reconnoitre.
- Breathing apparatus for personnel entering building.
- Instruct team of two for initial entry, rescue, and location of source.
- Establish water supply.
- Keep onlookers at a safe distance.
- Inform Control.
- More detailed reconnoitre.
- Monitor work.
- Minimise water damage.
- Clean up

**Considerations**

- Unseen spread of fire.
- Salvage - protect or remove valuable items, and avoid unnecessary damage.
4.2.4 Small Outdoor Fires - Including Skips

Hazards

- Possible hazardous materials.
- Gas cylinders, aerosol canisters.
- Fridges containing stored gas.
- Sharp objects, needles.
- Hazards to onlookers (neighbours, children, etc.)

Actions

- Approach from upwind if possible.
- Stop at a reasonable distance from the fire.
- Gather information from persons at the scene.
- Establish if persons involved - possibility of vagrants, children.
- Full personal protective equipment, including breathing apparatus.
- Protect exposures, prevent fire spread.
- Extinguish fire.
- Keep onlookers at a safe distance.

Considerations

- Spread to nearby buildings.
- Direction of smoke.
### 4.2.5 Large Building Fires

#### Hazards

- Hazards presented by unusual and innovative construction,
- Difficulty in locating the fire,
- Complex access arrangements
- Unusual patterns of fire spread and behaviour
- Rapid smoke generation and travel
- Structural collapse
- Large compartment sizes
- Nature of fire load - affects spread of fire and rate of growth.

#### Actions

**Pre-incident:**
- **Develop pre-incident plan.**
- Be aware of the building layout, compartment size, active systems, risks and access points.
- Develop liaison with key site personnel as part of pre-incident planning.
- Undertake exercises on-site.

**Incident:**
- Respond in accordance with pre-determined attendance.
- Determine the nature, location and extent of the incident and the key access points.
  - Are occupants, staff, and public accounted for?
  - Are adequate fire brigade resources on site?
  - Siting of appliances.
- Establish command structure and set up control point.
- Set up rendezvous point for arriving resources.
- Risk assessment:
  - Assess the risks before committing personnel.
  - Defensive or offensive tactics
- Seek advice from on-site personnel.
- Tailor initial operational tactics in light of first attendance resources.
- Carry out rescues, ensuring safe egress for firefighters.
- Identify and control sprinkler valve locations or other active fire suppression systems.
  - Do not shut off these systems until the fire is under control.
- Seek to contain fire away from unburned parts of the building, using compartment walls, etc.
- Water supply - may need large volumes of water.
Considerations

• Structural fire protection.
• Problems with entry.
• Method of entry.
• Structural hazards - uncompartmented large volume buildings.
• Additional hazards related to contents.
• Is specialist advice needed?
• Signs of escalation.
• Is it necessary for personnel to enter the building?
• Thermal imaging camera.
• Use monitors or fixed branches in hazardous areas.
• Use of aerial appliances - beware of overhead cables.
• Appoint safety officers.
• Cordon off area to safeguard public.
• If risk of pollution, inform local authority sanitary services or environment section.
• Liaise with Garda Síochána and other agencies on site.
• Allow for relief crews.
• Provide clean drinking water for personnel.
• Hygiene when dealing with casualties, etc.
4.2.6 Car Fires

Hazards

- Fuel tank - petrol, diesel, LPG.
- Contents of boot - gas cylinders, chemicals, etc.
- Inflated tyres blowing out.
- Moving traffic.
- Vehicle starting and moving due to electrical short.
- Air bags.
- Gas struts.

Actions

- Stop 20 metres from the incident - fend off.
- Cone diagonally from the appliance and cone to the car.
- Operate warning lights.
- Wear high-visibility clothing.
- Use hose reels with spray.
- Wear protective gloves.
- Wear breathing apparatus.
- Warn oncoming traffic - on both sides of the road.

Considerations

- Stopping alongside the incident may be justified in urgent circumstances - e.g. persons trapped - but must take correct warning and safety precautions.
- Avoid using motorway crossing if possible.
- Use motorway crossing if necessary - with Garda Síochána assistance - motorway pillars plastic or steel?
- If hard shoulder is used to gain access to the incident, drive with extreme caution - watch for vehicles pulling onto the hard shoulder or persons alighting from cars.
- If moving vehicle off the road or to side of road, consider using a winch or tirfor.
- Clean debris off the road.
- Notify Garda Síochána (if not in attendance) of vehicles which are left unoccupied.
4.2.7 High-Rise Building Fires

**Actions**

- Use of Firefighters lift.
- Operation of Firefighters switch.
- Do not leave lift unattended.
- Charging of rising main on instruction of OiC (2nd crew) - twin lines.
- Crews to proceed to floor below incident and consider taking the following equipment:

  1. 2 x BA sets, Entry Control Board & BA Guideline;
  2. 2 x 45mm hose and branch;
  3. 30m GP Line;
  4. Large axe and crow bar;
  5. Hand lamps and portable radio;
  6. DP and CO2 Extinguishers;
  7. Hearth Kit;
  8. First Aid Kit.

- Use of TL - HP.

**Considerations**

- Cross ventilation.
- Evacuation  NOTE - It may be safer for occupants of adjacent flats to remain in their accommodation.
- Fire spread via ducting and trunking;
- Fire spread via refuse chutes.
- Make rising mains and lifts safe after use.
- Keep staircases clear.
4.2.8 Ship and Port Fires

### Hazards

- Lifejackets are to be worn at all times unless in a place of safety. (If wearing breathing apparatus, don lifejacket first.)
- Keep clear and do not touch radio aerials, scanners.
- Seek advice before touching machinery and electrics. (Remember that they may be remotely operated.) Do not move valves.
- Confirm that compartments are gas free. Ensure fixed installations are inoperative. If in doubt, wear breathing apparatus.
- Haul and lower equipment. Do not carry equipment up and down vertical ladders. Tie off free end of the line.
- Each breathing apparatus team should consist of a minimum of three personnel.
- Provide a second means of escape.
- No smoking except in rest periods in safe area.

### Actions

- En route, check tactical information plan (tip).
- On arrival, contact ship’s officer and harbour master
- Confirm any persons missing, injured, threatened.
- Location of the fire?
- What is involved?
- What is the condition of the ship’s fire main or other fixed installations?
- Establish supplementary water supply (preferably fresh water).
- Run a line of hose to head of gangway and insert a controlled dividing breach.
- Breathing apparatus team (minimum of three) to rig.
- Early informative message, including type of vessel, name, tonnage (approx.), where lying on berth, cargo, extent of fire, what is in use.

### Considerations

- For larger vessels, it may aid personnel if a line is laid from the gangway to the location of operations.
- Language difficulties - maintain contact with fire control.
4.2.9 Offshore Fires

**Hazards**

- Lifejackets are to be worn at all times unless in a place of safety. (If wearing breathing apparatus, don lifejacket first.)
- Keep clear and do not touch radio aerials, scanners.
- Seek advice before touching machinery and electrics. (Remember that they may be remotely operated.) Do not move valves.
- Confirm that compartments are gas free. Ensure fixed installations are inoperative. If in doubt, wear breathing apparatus.
- Haul and lower equipment. Do not carry equipment up and down vertical ladders. Tie off free end of the line.
- **Each breathing apparatus team should consist of a minimum of three personnel.**
- No smoking except in rest periods in safe area.

**Actions**

- **Air transfer:**
  - Full personal protective equipment - immersion suit, lifejacket. (Carry fire kit.)
- **Seaborne transfer:**
  - Full personal protective equipment - immersion suit, lifejacket.
  - **Ensure standby vessel or helicopter available.**
  - On arrival, contact ship’s officer
  - Confirm any persons missing, injured, threatened.
  - Confirm assistance required
  - Location of the fire?
  - What is involved?
  - What is the condition of the ship’s fire main or other fixed installations?
  - Early informative message, including type of vessel, name, tonnage (approx.), cargo, extent of fire, what is in use.
  - Crews should report to OiC regularly (at least every fifteen minutes).
  - Maintain contact with standby vessel or helicopter.

**Considerations**

- Language difficulties - maintain contact with fire control.
4.2.10 Fires Involving Aircraft

<table>
<thead>
<tr>
<th>Hazards</th>
<th>(to passengers, firefighters, others)</th>
</tr>
</thead>
</table>
| • Flammable liquids  
• Toxic liquids  
• Radiation sources  
• Pressurised systems  
• Electrical services  
• Moving parts (propellers, jet, others)  
• Payload - may include hazardous materials  
• Confined spaces  
• Decomposition of carbon fibre. |

**Actions**

- Approach from upwind and uphill direction if possible
- Caution when approaching aircraft:
  - Jet  - do not approach within 7.5 metres of the air intake.
  - do not approach within 45 metres of the exhaust.
  - Propeller  - stay well clear of propellers.
  - Helicopter  - approach from the rear on the opposite side from the tail rotor.
- Isolate the fuselage from fire and heat.
- Spray along the line of the fuselage, cooling and driving fire away from the occupied portion of the plane.
- Protect rescue and exit paths.
- When an adequate supply of foam is available, commence foam attack.
- Breathing apparatus should be worn.
- Ensure adequate lighting.

**Considerations**

- On-coming appliances may need to be advised of route details.
- Evacuation of non-operational personnel.
- Personal protection - gas tight suits may be needed.
- Decontamination.
### 4.2.11 Overhead Power Lines

#### Hazards

Possible electrocution by:
- Direct contact with power lines;
- Use of jets in proximity of power lines;
- Flash-over from conductor to ground caused by smoke or flame.

#### Actions

- Set up a 10 metre corridor either side of high voltage power lines for personnel and equipment.
- In extreme circumstances request can be made to ‘switch out’ circuit. Giving control following information:- Location / Voltage / Route letters and tower no. / Circuit colours (Information can be found on plate affixed to side of tower. - **NOTE:** towers in immediate vicinity need not be approached as information from adjacent towers will allow identification).
- **Incidents Involving Electrical Apparatus**
  - OiC request ESB Engineer.
  - Do not allow crew members to enter enclosures, climb on towers or poles supporting lines.
  - Do not manipulate ladders or long objects in close proximity to apparatus or power lines.
  - Do not spray water or foam directly on electrical apparatus.
  - **NOTE:** Switching off the supply does not necessarily render it safe. The OiC will consider the equipment to be ‘SAFE’ only when the ESB Engineer states that it is SAFE TO WORK WITHOUT RESTRICTION.
4.2.12 Fires in Buildings with Sandwich Panel Construction

Hazards

- Possibility of catastrophic internal collapse with little or no warning, when involved in fire. May also collapse when not directly involved e.g. in adjacent compartment.
- Delamination of panels leading to:
  - Large metal sheets falling, causing exposure of combustible infill and subsequent increase in fire load and development of fire;
  - Undetected fire spread inside sandwich panel;
  - Products of combustion and fire run off water may have polluting effect.

Actions

Recognition of Panels
- Found on walls and ceilings in food processing and storage plants, abattoirs and cold storage areas where a clean temperature controlled environment is required. Also used for sound insulation (e.g. discotheques).
- Infills in panels can be described as cellular plastic and are either:-
  Polystyrene;
  Polyurethane;
  Polyisocyanurate.
- Surface will look like metal, painted with a high grade paint or coated with a smooth plastic. However, the finish of panels may make them difficult to recognise, therefore where the use of a building indicates the need for insulation, assume sandwich panels exist.

Procedures
- Gather all relevant information with regard to the presence and location of sandwich panels within the building.
- Information gained and how far fire has spread will determine fire tactics.
- Crews should be fully briefed and made aware of the potential dangers.
- Delegate Safety Officers to monitor the situation. Thermal imaging cameras may assist with this if available.
- Walls and ceilings involved in fire prior to arrival or during incident - great care must be taken.
• If necessary to enter building to carry out rescues, Officer in Charge should consider using water spray to cool and dilute atmosphere and large jets to tackle seat of fire.
• Make up will be required.
• Early ventilation should be carried out (may include the removal of the outer skin of the building - preferably above the line of the ceiling).
• Number of firefighters exposed should be kept to a minimum.
• Panels involved and no persons trapped in the building - fire fighting should take place in an area of relative safety, which may be from outside the building.
• Maintain clear means of egress to allow rapid exit from building at all times. (May require additional exits being cut in outer skin of building).
4.3 Operational Procedures for Hazardous Material Incidents

4.3.1 Hazardous Materials

<table>
<thead>
<tr>
<th>Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Contamination of personnel;</td>
</tr>
<tr>
<td>• Inhalation of fumes;</td>
</tr>
<tr>
<td>• Contamination of equipment;</td>
</tr>
<tr>
<td>• Spillage’s;</td>
</tr>
<tr>
<td>• Contamination of water courses etc;</td>
</tr>
<tr>
<td>• Potential for fire.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Consider route to incident carefully / alternative routes;</td>
</tr>
<tr>
<td>• Wind direction / approach upwind;</td>
</tr>
<tr>
<td>• Slope of land? Stay uphill;</td>
</tr>
<tr>
<td>• Identify substance; Use laminated form to gather information</td>
</tr>
<tr>
<td>• Obtain information on substance - consider all available sources:</td>
</tr>
<tr>
<td><strong>Hazchem List</strong></td>
</tr>
<tr>
<td><strong>Emergency Response Guidebook</strong></td>
</tr>
<tr>
<td>Emergency Service Hazcard</td>
</tr>
<tr>
<td>Fire Control - Chemdata;</td>
</tr>
<tr>
<td>ADR/ TREMCARDS</td>
</tr>
<tr>
<td>Package labels;</td>
</tr>
<tr>
<td>Container labels;</td>
</tr>
<tr>
<td>Specialist advice;</td>
</tr>
<tr>
<td>• Are the loads single or mixed?</td>
</tr>
<tr>
<td>• Cordon off area;</td>
</tr>
<tr>
<td>• Personal protection - CPS - Gastight;</td>
</tr>
<tr>
<td>• Stop leak or spillage (for example, by closing valve, blocking hole in vessel, turning vessel so leak is uppermost, placing leaking vessel in a larger container);</td>
</tr>
<tr>
<td>• Prepare and set up decontamination zone - Stage I or II;</td>
</tr>
<tr>
<td>• Contact Environment Section }</td>
</tr>
<tr>
<td>• Contact Water Services } via Fire Control</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Assistance of Local Authorities for provision of sand for spillage’s;</td>
</tr>
<tr>
<td>• Specialist suppliers for soda ash etc.</td>
</tr>
</tbody>
</table>
### 4.3.2 Agrichemicals/Fertilisers

#### Hazards

- Exposure to agrichemicals and fertilisers.
- Run off of fire fighting water.
- Spillage of substances entering drains, water courses etc.

#### Actions

**(Agrichemicals/Pesticides)**

- BA and CPS
- Contain chemical spillage
- Contain water used for fire fighting.
- Use water spray.
- Request Environment Section Support.
- If large quantities of water are unavailable, consider allowing contents and buildings to burn under control.

**Actions**

**(Fertilisers)**

- BA
- Serious fire - water jets to hot zone
- NOTE: Water spray and fog may cause violent steam and molten fertiliser eruptions.
- Weak oxidising agent - may self heat and decompose.
- Brown fumes and pungent odour indicate self decomposition.
- Confinement can accelerate decomposition.
- Possible explosions
- Remove or break up suspected areas of decomposition.
- Copious supplies of water required to control self decomposition.
- Avoid contamination of fertiliser by oil and other combustible materials.
- Maximum ventilation.
- Do not allow molten fertilisers to accumulate in fire area or to enter water courses, drains etc.
- Inform Environment Section
- Avoid personal contact with molten chemicals.
- Use water spray to protect fertilisers in close proximity to fire.

#### Considerations

- Environment Protection Unit.
- Incident Support Unit.
- Specialist advice.
4.3.3 Acetylene

Hazards

- Forms flammable or explosive mixture with air or oxygen.
- Wide flammable range.
- Possibility of explosion as a result of decomposition within the cylinder.
  Decomposition can be caused by:
  - Exposure of an acetylene cylinder to heat (for example, involvement in a fire in a building). Decomposition can continue after withdrawal of a source of heat.
  - Physical shock to an acetylene cylinder (for example, through falling).

Actions

- **Identify cylinders**
  - Normally, maroon in colour at the cylinder’s shoulder
  - (Cylinders carried on ships or aircraft might not be maroon in colour.)

- **In case of a leaking cylinder:**
  - Stop leak, if possible
  - If unable to stop leak:
    - Isolate for 150 metres,
    - Evacuate persons from the area,
    - Remove ignition sources,
    - Vent gas from buildings.

- **In case of a cylinder involved in fire:**
  (Indications of involvement in fire or exposure to heat could include blistering or scorching of paint on the cylinder, or damage or melting of the valve assembly.)
  - Do not approach or move the cylinder.
  - Do not shock or damage the cylinder.
  - Establish a 200 metre **hazard zone** (see considerations, overleaf), and use maximum shielding.
  - If safe to do so, apply cooling water for 24 hours. Use a fixed monitor or lash a branch in place.
    (If not safe, cordon off the area and leave for 24 hours)
  - After 24 hours, apply water (to test whether the cylinder surface is hot). If the surface remains wetted, transfer responsibility for the cylinder to the gas supplier. If the surface remains hot, return to the above actions.
Considerations

- Hot spots on cylinders indicate possible internal decomposition.
- Binoculars may be used to observe cylinders from a distance.
- Swelling or bulging of cylinders indicates immediate danger.

**Hazard zone:**
- The 200 metre distance is based on the possible travel distance, in the event of an explosion, of cylinder fragments, for a cylinder located on open ground.
- If a cylinder is inside a structure, the extent of the potential hazard may be reduced, dependant on the ability of the structure to absorb energy.

**Within the hazard zone,** three zones may be set out (taking into account the location of the cylinder, the protection offered by surrounding structures, and local topography):
- **Hot zone** - the area closest to the cylinder. (This could be the room or building in which the cylinder is located, if it is of significant construction.) Personnel should not enter this area for any purpose other than to save life.
- **Warm zone** – to be determined by the OiC. Distance and shielding will be important factors. Evacuation of buildings in this area may be necessary. The number of Fire Service personnel operating in this zone should be kept to a minimum. They should at all times keep as much shielding as possible between themselves and the hazard, and should wear the appropriate personal protective equipment.
- **Cold zone** – This is the area between the warm zone and the 200 metre extent of the hazard zone. Buildings in this zone will not necessarily need to be evacuated, dependant on the distance and shielding provided. Occupants of buildings not evacuated should be advised of the possible hazards, and told to stay indoors and away from windows, etc.

- If evacuation is considered necessary, consult with the Garda Síochána.
- Consider requesting specialist advice.
4.3.4 Anhydrous Ammonia (SIN (UN No.) 1005) Rail Transport

Hazards

- Toxic - may cause serious injury if inhaled or absorbed through skin.
- Corrosive - liquid or vapours may cause burns to skin, respiratory tract, or eyes.
- Flammable - vapours may be ignited. (Flammable range 16%-27%)
- Low temperature - contact with liquid may cause frostbite.
- Pollution - avoid spillage entering rivers or streams, or soaking into ground.

Actions

- Approach from upwind and uphill if possible.
- Request attendance of Ambulance Service and Garda Síochána.
- Alert Iarnród Éireann Central Traffic Control, and request stopping of rail traffic.
- Seek advice and assistance from Iarnród Éireann and IFI.
- Isolate danger area (50 metres in all directions, and further downwind if necessary).
- Establish if persons are reported or involved.
- Identify/verify hazardous material(s) involved.
- If there is a leak of ammonia, instruct non-essential personnel to move at least 250m away from the incident.
- Establish water supply - from mains, or other source. (Use barrier wagon(s) (water wagons at front and rear of train) if possible/necessary.)
- Consult Hazchem Book or Emergency Response Guidebook (DOT Book).
- Breathing apparatus, and gas-tight chemical protective clothing for personnel entering danger area. Where there is danger of contact with liquid ammonia, wear thermal clothing under gas tight suit - i.e. fire fighting tunic, overtrousers, heavy socks and gloves.
- Avoid contact with liquid ammonia.
- Rescue persons from danger area.
- Decontamination - Fire Service personnel and casualties if necessary.
- Confirm/identify source of leak.
Actions

- For small leak, absorb vapour with fine water spray - contain runoff if possible.
- For large leak, advise persons in the vicinity and downwind to shelter indoors and close all windows and doors; this may be a safer option than evacuation.
- Evacuation may be considered necessary - consult Hazchem Book for guidance (see para.3.2.5, p.vi in Hazchem List 10, 1999).
- If evacuation is considered necessary, see Emergency Response Guidebook (DOT Book) for recommended initial evacuation distances.
- Stop leak if practicable. (This is likely to require specialist equipment and advice or assistance.)
- Maintain scene safety.

Considerations

- Use detection equipment (e.g. aspirating tube or similar) to confirm presence of leak and confirm extent of danger area.
- Water spray may be used to direct/deflect vapours.
- Fine water spray may be used to absorb vapours.
- Avoid pollution - contain runoff if practicable.
- Notify local authority Environment or Sanitary Services Section.
- For large spillage on ground, dilute with water and/or blanket with foam to reduce production of vapours.
4.3.5 Asbestos

Hazards

- Inhalation / ingestion of fibres / irreversible effects.
- Airborne fibres.
- Very fine fibres - invisible to the naked eye.
- Carcinogenic.

Actions

- Early assessment of incident required.
- Where possible, avoid exposure to any asbestos.
- If not possible, number of personnel exposed to asbestos to be kept to a minimum.
- Make all personnel aware of hazard.
- Asbestos materials not involved in fire or damaged - no risk.
- Asbestos involved in fire ) BA / CPS required
- Within smoke/fire plume ) BA / CPS required
- Interior of building ) BA / CPS required
- Disturbance of asbestos material ) BA / CPS required
- Do not create unnecessary dust.
- Avoid use of power tools.
- Avoid unnecessary disturbance of material.
- Keep asbestos materials wet whenever practicably possible.
- DO NOT ALLOW smoking, eating or drinking until washing facilities are available.

Decontamination

- All BA/CPS wearers to be decontaminated.
- Personnel to shower either on site or on return to Station.
- Contaminated fire kit to be dry decontaminated and double bagged in soluble bags.
- If vacuum cleaning not available, fire kit should be dampened with water spray and double bagged in NON SOLUBLE BAGS

Considerations

- Request attendance of Environmental Section.
- Asbestos can be found in railway rolling stock, ships, buildings.
- Pipe and tank insulation.
- Brake pads.
- Gaskets.
- Manifolds.
4.3.6 Biohazards

Refers to Biological Hazards, which are organisms that produce disease in man.

The Howie Code (a code of practice for the prevention of infection in clinical laboratories and post-mortem rooms) divides organisms into four categories A, B1, B2 and C - in decreasing order of severity.

Of these, A are the most serious, being extremely hazardous to laboratory workers and likely to cause serious epidemic disease.

Biohazards may be found in:-

clinical laboratories;
isolation wards;
post-mortem rooms.

<table>
<thead>
<tr>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fires should be fought in normal way;</td>
</tr>
<tr>
<td>• Liaise with on-site staff;</td>
</tr>
<tr>
<td>• BA &amp; CPS for rescues;</td>
</tr>
<tr>
<td>• Normal decontamination procedures;</td>
</tr>
<tr>
<td>• For Category ‘A’ pathogens, decontamination should be carried out with medical advice if possible. Clothing should be washed down with disinfectant before removal;</td>
</tr>
<tr>
<td>• Following removal of contaminated clothing, personnel should shower thoroughly;</td>
</tr>
<tr>
<td>• Contaminated clothing and equipment should be securely bagged and removed from scene for thorough decontamination, with medical advice, particularly if Class ‘A’ involved;</td>
</tr>
<tr>
<td>• If fire involves Class ‘A’ pathogens, seek medical advice. If none available, limit water use to prevent pathogens entering drains etc.;</td>
</tr>
<tr>
<td>• Rescue of animals kept for experimental purposes may be dangerous and should not be attempted without specialist advice;</td>
</tr>
<tr>
<td>• All appliances and personnel should be stationed upwind;</td>
</tr>
<tr>
<td>• Evacuation of surrounding areas may be necessary if it is considered that the fire plume may spread pathogens;</td>
</tr>
<tr>
<td>• No eating, drinking or smoking should be allowed;</td>
</tr>
</tbody>
</table>
Considerations (Contd...)

- Restricted area should be set up and cordoned off;
- Records should be kept of personnel exposed to biological material and nature of material and medical advice sought in case of illness within 21 days of incident.

Transport of Biohazards

- Category ‘A’ pathogens should be transported in private cars, accompanied by a second private car containing a person familiar with the pathogen and the precautions necessary in case of an accident. The package should be securely wrapped and should carry a warning indicating the contents and ‘Danger from Infection’.
- In the event of an accident, the assistance of the accompanying specialist should be sought. Protective clothing and gloves should be used to remove the package which should be placed in a large plastic bag which should then be closed and sealed and held secure until further specialist assistance is available.
4.3.6a Biological agents (For example, anthrax.)

**Hazards**

- Infection of personnel, through skin contact, inhalation, or ingestion (eating or drinking infected material).

**Actions**

- Make contact with Garda Síochána on site.
- In consultation with Garda Síochána and Defence Forces Explosive Ordnance Disposal (EOD) team (if on site), establish an isolation area surrounding the agent:
  - If a biological agent is exposed (for example, if a suspect package is open, damaged, or is leaking), an initial isolation distance of 20 metres should be used.
  - If an explosive device is present, this should be increased to 50 metres.

These distances may be revised in light of information becoming available as the incident develops.

- Request Ambulance attendance.
- Consult with Garda Síochána. If necessary, Garda Síochána will request attendance of EOD team (to deal with the biological agent).
- If possible, confirm that all persons on scene have moved outside the isolation area. Fire Service personnel should enter isolation area for search-and-rescue only. EOD team may enter to inspect, deal with, or remove suspect packages or devices.
- Protect Fire Service personnel operating within isolation area:
  - Gas-tight suit, breathing apparatus, boots and gloves.
- Remove/rescue persons from isolation area.
- Fire Service personnel operating within the isolation area should minimise their contact with the agent. Avoid any contact if possible.
- Consult with Garda Síochána and Public Health officials (contact by ‘phone, if necessary) to determine if there is a need to decontaminate affected persons on-site.
If decontamination necessary:

- Remove contaminated clothing and jewellery and contain. (Place in a heavy plastic bag and seal, if possible.)

- Use water with soap or detergent to remove contamination. (Use warm water (30°C, 86°F), if available.) Provide clean, dry clothing for decontaminated personnel, if possible.

- Contain runoff water (by, for example, carrying out decontamination within a dam or portable paddling pool) and treat as contaminated.

- Runoff water can be decontaminated by adding hypochlorite (household bleach) to give a 0.5% solution (one part household bleach to nine parts water – if in doubt, ensure bleach solution is above this strength). Leave for two hours, after which runoff can be flushed to drains.

- Spray the decontamination area with bleach solution (0.5%).

- All persons potentially exposed should be sent for medical attention.

**Considerations**

- In general, if the incident concerns an unopened, intact package suspected to contain biological agents, there should be no need to decontaminate persons at the scene, or Fire Service personnel. Consult with Health Board Public Health officials to verify if decontamination is necessary.

- Where decontamination of the public is considered necessary, consideration should be given to minimising the distress, discomfort, or apprehension caused to those undergoing decontamination. Where possible, decontamination should be carried out in a discreet location. Provision of screening, to protect privacy, should be considered, as should measures to respect modesty.
4.3.7 Explosives

Hazards

- Mass explosions
- Projectiles
- Fire Hazards

Identification

By Road
- Orange plate front and rear;
- Orange warning diamond plate on either side of vehicle indicating classification.

By Rail
- Orange warning diamond and a dangerous goods label on either side.

Aircraft
- Packages on aircraft marked with an orange warning diamond.
- Commercial aircraft will normally only carry classification 1.4

Explosives Classifications

- Division 1.1 - Mass explosion hazard - Vehicle and anything in close proximity could be destroyed.
- Division 1.2 - Projection hazard - likely to burn and explode progressively.
- Division 1.3 - Fire hazard - load could burst into flames violently and without warning - intensive radiated heat.
- Division 1.4 - Fire hazard - no other significant hazard.
- Division 1.5 - Very insensitive substance but could behave like Division 1.1
- Division 1.6 - Extremely insensitive. No mass explosion hazard.

Actions

Explosives not yet involved in fire
- Cool the load, make every effort to extinguish the fire.
- Stop fire spreading to explosives.

Explosives involved in fire
- Evacuation is priority.
- Evacuate members of the public to at least 600m.
- Firefighters must be protected using earth embankments or other substantial cover.
- Only consider fire fighting if lives would be saved by delaying a mass explosion.

Considerations

- Packaging may prevent cooling water being fully effective.
- Explosives contain their own oxygen and smothering is unlikely to be effective.
- Specialist advice.
4.3.8 Use of Foam

**Quantity Required at Incident**

- Early assessment required with message to Control to mobilise stocks.

**Application Rate for Low Expansion**

- Fire fighting plan must consider requirements for a minimum of 30 minutes attack
- Foam Solution required in litres = 5 litres per square metre per minute or
- Application Rate (A) = surface area of fire (m²) x 150
- Foam Concentrate required in litres = 0.12 x A

**AFFF**

- Good for initial knockdown
- Must be backed up by low expansion foam (protein) on large flammable liquid fires - e.g. aircraft fire

**Low Expansion (Protein)**

**Appliance Equipment (Examples)**

- FB5X - 230 litres per minute of foam solution @ 5.5 bar
- F225H - 225 litres per minute of foam solution @ 7 bar

**Foam Trailer Equipment (Examples)**

- 4 x F450H - each capable of producing 450 litres per minute of foam solution @ 7 bar
- 1 x Jetmaster - 1680 litres per minute of foam solution @ 10 bar
- 4 x F225H - each capable of producing 225 litres per minute of foam solution @ 7 bar

**Medium Expansion**

**Foam Trailer Equipment**

- 2 x MEX 450 - each capable of producing 300 litres per minute of foam solution @ 2.5 bar (uses low-expansion or hi-expansion concentrate)

**Hi-Expansion**

**Foam Trailer Equipment**

- 2 x Mini-Turbex - each capable of producing 80 square metres per minute @ 5.6 bar
- 1 x Inflatable foam concentrate storage dam - 1000 litres maximum capacity
4.3.9 LPG (Liquefied Petroleum Gas)

<table>
<thead>
<tr>
<th>Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Anaesthetic properties;</td>
</tr>
<tr>
<td>• Explosive;</td>
</tr>
<tr>
<td>• Heavier than air - will accumulate at low level;</td>
</tr>
<tr>
<td>• Leaks;</td>
</tr>
<tr>
<td>• Fires;</td>
</tr>
<tr>
<td>• Excessive LPG entrained into diesel engine air intakes can cause severe damage to appliance engine.</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Actions</th>
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</thead>
<tbody>
<tr>
<td><strong>Domestic Cylinders</strong></td>
</tr>
<tr>
<td>• <strong>Small fire at leak</strong> - extinguish with damp cloth.</td>
</tr>
<tr>
<td>• <strong>Cylinder not involved</strong> - turn off, disconnect and remove to safe place.</td>
</tr>
<tr>
<td>• <strong>Cylinder involved</strong> - cooled water spray - main valve turn off - remove to safe place.</td>
</tr>
<tr>
<td>• <strong>Damaged main valve or gas issuing from cylinder</strong> - water spray will reduce gas flow sufficiently to extinguish fire and remove cylinder.</td>
</tr>
<tr>
<td>• Do not extinguish flame unless cylinder can be turned off. Gas continuing to escape may accumulate and be ignited.</td>
</tr>
</tbody>
</table>

**NOTE** -
| • **Small leak** - good local ventilation safe to extinguish flame and remove cylinder. |
| • Cylinders directly heated by fire for appreciable time - danger of explosion - cooling behind cover. |
| • Particularly applies to propane cylinders. |
| • **Cylinder not vertical** - valve open - liquid may emerge instead of gas |
Actions

Bulk LPG
- Stop out flow of product by closure of valves;
- If ignition has occurred, protect tanks and surrounding risks;
- Do not extinguish fire unless outflow has been stopped;
- Protect supporting structures and any dry areas of tanks not covered by fixed installations.
- If a discharge of gas that is on fire becomes suddenly more noisy - indicates dangerous rise in pressure - withdraw personnel - use ground monitors etc.;
- Contents of LPG container become exhausted causing loss of internal pressure and admission of air. An explosive mixture would occur within container - If flame should enter, a violent explosion would likely ensue.

Gas Leak / Cloud
- Approach up wind
- All vehicles outside area
- Persons should not enter gas cloud
- Remove ignition sources
- Most urgent consideration persons downwind
- Diversion of gas cloud with water spray
- Ventilation - accumulation of gas at low levels

Gas Pipe Lines
- Premature closure of valves may give rise to other difficulties - draining sections etc.
- Liaise closely with responsible representative
- Enforce ‘No Smoking’ - no vehicles within 15 metres
- Control fire - do not extinguish until plan of action agreed
- Lay out branches
- Consider forming a pit or bunded area to contain escaping liquid
- Check surrounding areas for streams/drains etc.
- Environment Section

Considerations
- Specialist advice/close liaison
- Evacuation
- Testing equipment
- Quantities of cooling water required
- Run off/containment of large quantities of water
- Wind direction/weather conditions
### 4.3.10 Radiation

#### Hazards

- Contamination of personnel causing possible injury to body cells or death.
- Cannot be detected easily.

#### Actions

- Approach and remain upwind.
- Identify if source is sealed or unsealed - **unsealed is the most hazardous**.
- Identify strength of source.
- Originate ‘Radiation Suspected’ or ‘Confirmed’ messages.
- Liaise with on site specialist/advisor from RPII.
- Establish restricted area, estimated 50m and confirm ASAP with survey meter.
- No entry without BA, full fire kit, radiation/plastic gauntlets, rubber boots. **CPS or gastight suits do not give additional protection but will assist with decontamination.**
- No smoking, eating or drinking at incident.
- Issue Dosimeters to all entering restricted area (GAMMA only).
- Set up decontamination zone.
- Establish individual time / exposure records.
- Maximum exposure rates for Fire-fighters: 20 mSv/year (except for pregnant females, for whom the limit is 1 mSv/year). In exceptional cases, such as where a life is at risk, higher doses may be justified.

#### Considerations

- **ALPHA** - Invisible particles travel 30-40 mm extremely hazardous.
- **BETA** - Invisible particles travel up to 1 metre and can penetrate some materials.
- **GAMMA RAYS** - Difficult to stop, pass through brick, concrete etc.
- Taking into account the inventory of licensed sources in Ireland, it is difficult to foresee a scenario where the dose rate to Fire-fighters would be so high as to prevent life saving action.
4.3.11 Seveso Sites

Refers to industrial installations storing specified quantities of named dangerous substances or carrying out specified operations involving dangerous substances which may, in the event of an accident, have serious consequences on the workforce and neighbouring areas.

Dangerous substances may be very toxic, toxic, flammable, explosive or oxidising.

On and off-site emergency plans to deal with accidents exist. Off-site plans are held at appropriate Stations.

The occupier of the site must also provide information to people outside the site who may be affected by an on-site accident.

**Actions**

- Refer to emergency plan
- Refer to Haz Mat Incidents.
4.3.12 Chemical weapons agents

Chemical weapons agents are materials specifically produced for the hazards they present to personnel. Because of the highly toxic or harmful nature of these materials, the safety of personnel (including emergency service personnel) involved at the scene of an incident should be the primary concern of the officer-in-charge.

Incidents involving chemical weapons agents may not always be immediately obvious. Where there is a deliberate, malicious release of a chemical weapons agent, the intention may be to cause serious injury and disruption, and those responsible may provide little or no information on the event or the materials involved. Possible indicators of a release of chemical weapons agents include:

- Dead animals, birds or fish - Not just an occasional road-kill, but numerous animals (wild and domestic, small and large), birds and fish in the same area.
- Lack of insect life - If normal insect activity (ground, air, and/or water) is missing, then check the ground/water surface/shore line for dead insects. If near water, check for dead fish/aquatic birds.
- Physical symptoms - Numerous individuals experiencing unexplained water-like blisters, wheals (like bee stings), pinpointed pupils, choking, respiratory ailments and/or rashes.
- Mass casualties - Numerous individuals exhibiting unexplained serious health problems ranging from nausea to disorientation to difficulty in breathing to convulsions to death.
- Definite pattern of casualties - Casualties distributed in a pattern that may be associated with possible agent dissemination methods.
- Illness associated with confined geographic area - Lower attack rates for people working indoors versus outdoors, or outdoors versus indoors.
- Unusual liquid droplets - Numerous surfaces exhibit oily droplets/film; numerous water surfaces have an oily film. (No recent rain.)
• Areas that look different in appearance - Not just a patch of dead weeds, but trees, shrubs, bushes, food crops, and/or lawns that are dead, discoloured, or withered. (No current drought.)

• Unexplained odours - Smells may range from fruity to flowery to sharp/pungent to garlic/horseradish-like to bitter almonds/peach kernels to new mown hay. It is important to note that the particular odour is completely out of character with its surroundings.

• Low-lying clouds - Low-lying cloud/fog-like condition that is not explained by its surroundings.

• Unusual metal debris - Unexplained bomb/munitions-like material, especially if it contains a liquid. (No recent rain.)
### 4.3.12a Incidents involving chemical weapons agents

#### Hazards

- Substances may be toxic - contact with liquid or aerosol, or inhalation of vapour or gas, is hazardous.
- Substances may be corrosive and/or flammable.
- Contact with water or steam may produce toxic and corrosive vapours.
- Contact with metals or concrete may produce highly flammable hydrogen gas.
- Fire may produce irritant, corrosive and/or toxic gases.

#### Actions

- Successful response will require multi-organisation consultation on site. Establish a control point **upwind**.
- **Make contact with Garda Síochána on site.** (Request Garda Síochána attendance, if not present.) Consult the Garda Síochána (and Defence Forces Explosive Ordnance Disposal (EOD) team, if on site) regarding the threat posed by a suspected chemical weapons agent or device. If the agent, device or package is considered suspicious, or if a definite danger exists, establish a **danger area/isolation area**:
  - In the case of a **dormant agent** (a container or device suspected to contain a chemical weapons agent, but with no release of the agent):
    - In the absence of specific advice, if the presence of a chemical weapons agent is considered likely, isolate **30 metres** (100 feet) in all directions. Increase this distance to **155 metres** (500 feet) if an explosive device is also present or suspected. In the case of an agent located indoors, consider evacuation of the whole building.
  - In the case of an **active agent** (a container or device leaking or releasing a suspected chemical weapons agent), establish a **danger area**:
    - Isolate immediately for **155 metres** (500 feet) in all directions.
    - Consult the *2000 Emergency Response Guidebook* for further advice or information on downwind isolation and protective action distances.

(These distances may be revised in light of further information or advice becoming available as the incident develops.)

All operations of the main emergency services within the danger area will be under the control of the senior fire brigade officer. (The EOD team may enter the danger area, with the agreement of the senior fire brigade officer, and operate in accordance with EOD procedures. The officer-in-charge of the EOD team has responsibility for these procedures.)

- **Request Ambulance Service attendance.**
- Consider activation of the Major Emergency Plan.
- Consult Garda Síochána. If necessary, Garda Síochána will request attendance of EOD team (to deal with explosive devices that may incorporate chemical weapons agents, and advise on identification or dealing with chemical weapons agents).
- If possible, confirm that all persons on scene have moved outside the isolation area/danger area.
• EOD team may enter to inspect, deal with, or remove suspect devices.
• Protect Fire Service personnel operating within the danger area:
  • Gas-tight suit, breathing apparatus, chemical resistant boots and gloves.
• Remove/rescue persons from isolation area/danger area.
• Fire Service personnel operating within the isolation area/danger area should minimise their contact with the agent. **Avoid any contact if possible.**
• Consider need for decontamination of affected persons on site. (Advice may be sought from EOD team (if on site) and/or National Poisons Information Centre.)

**If decontamination is necessary, it should be done as soon as possible.** In the absence of specific advice:
• Remove contaminated clothing and contain. (Place in a heavy plastic bag and seal, if possible. Double bag if sufficient bags are available.)
• Use water (warm, if possible) with soap, shampoo or detergent to remove contamination.
• Contain runoff water (by, for example, carrying out decontamination within a dam or portable paddling pool) and treat as contaminated.
• Stop or reduce leaks, or contain agents (for example, by turning leaking containers so that the leak is uppermost, by using materials such as plaster of Paris to seal a leak, or by placing containers inside a larger container, such as an over-drum, and sealing the larger container), if you can do it without risk.

**All persons potentially exposed (whether to liquids, aerosols, gases or vapours) should be sent for medical attention.**

**Considerations**

• Necessity for decontamination (in absence of specific advice):
  • Where persons come in contact with liquid or aerosols of chemical weapons agents, there can be a threat to persons through skin contact. In general, contaminated clothing and jewellery should be removed and persons decontaminated as soon as possible.
  • Exposure to vapours or gases does not, in general, require decontamination. Persons exposed to vapours or gases may be seriously affected, however, and should, in any case, receive medical attention.
  • Where decontamination of the public is considered necessary, consideration should be given to minimising the distress, discomfort, or apprehension caused to those undergoing decontamination. Where possible, decontamination should be carried out in a discreet location. Provision of screening, to protect privacy, should be considered, as should measures to respect modesty.
  • Aspirated tube detectors (for example, Draeger tubes) may be used to test for presence of specific agents, or to check integrity of danger area. EOD Teams are equipped with detection equipment for chemical weapons agents.
  • Consider need to secure and decontaminate the site of any release of chemical weapons agents.
4.4 Operational Procedures for Rescues

4.4.1 Road Traffic Accidents

**Hazards**

- Traffic (may be large volume or fast moving)
- Fuel spillage
- Ignition sources (battery, hot metal)
- Airbags
- Sharp edges
- Use of powered tools
- Body fluids
- Hazardous loads involved

**Actions**

- Early alert of Ambulance and Garda Síochána
- Slow approach and fend off
- Scene safety - cones, warning signs/lights, cordon, fire fighting media
- Personal protective equipment - high visibility clothing, goggles, visor, gloves, surgical gloves
- Hygiene
- Reconnoitre of scene - casualties, vehicles, hazards
- Make contact with casualty
- Control and layout of scene
  - Inner and outer circles
  - Equipment dump
  - Debris dump
- Stabilise vehicle
- Stabilise casualty, reassure
- Co-ordinate casualty care with Ambulance Service personnel
- Decide extrication method
- Protect and reassure casualty
- Control use of tools
- Remove casualty from vehicle
- Remove casualty to hospital

**Considerations**

- Spectators, bystanders
- Heavy lifting equipment
- Accident investigation - Garda Síochána
- Effects of difficult incidents on personnel
### 4.4.2 Motorway

#### Hazards
- Large volume of fast moving traffic.
- Casualties on carriageways.
- Hazardous loads involved.
- Chemical Spillage.

#### Actions
- Stop 50m before incident.
- Fend off - DO NOT obstruct the other carriageways.
- Operate warning lights (Rear appliances only).
- Dismount on opposite side to the traffic.
- Wear Hi-Vis jackets. Consider safety of personnel at all times.
- Cone diagonally from appliance rear.
- Locate Garda Accident sign 900m from incident if possible, 400m if not. Operate blue lights with sign.
- Maintain close liaison with Garda Síochána.

#### Considerations
- **Stopping alongside incident (unaffected carriageway) - Justified if incident is of a major nature e.g. CAR FIRE - PERSONS TRAPPED. Avoid if possible. Take correct warning and safety precautions.**
- Do not attempt to cross carriageway on foot with heavy equipment.
- **Emergency Crossing Points** - These are located at intervals along some motorways. Crossing at these points is extremely dangerous. **Carry out crossing only in extreme cases and only under direction and supervision of Garda Síochána.**
- **Reverse Running** - This is **only** carried out when the carriageway is blocked, and/or when traffic is stopped and with Garda Síochána approval or with Garda Síochána supervision and with all warning/headlights on.
- Excessive use of warning lights can have adverse effects on the traffic on the unaffected carriageway.
- Water carriers.
- If hard shoulder is to be used to gain access to incidents:- Drive with extreme caution; Blue lights and headlights on; If necessary, two tone horns should only be used briefly - continuous use may cause confusion to drivers.
4.4.3 Rail Tunnels
- See also 4.4.6 Rail

<table>
<thead>
<tr>
<th>Hazards</th>
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<tbody>
<tr>
<td>• Potential lack of ventilation.</td>
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<tr>
<td>• Rail traffic.</td>
</tr>
<tr>
<td>• Potential hazardous loads involved.</td>
</tr>
<tr>
<td>• Chemical spillage.</td>
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<table>
<thead>
<tr>
<th>Actions</th>
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</thead>
<tbody>
<tr>
<td>• Ensure rail traffic stopped.</td>
</tr>
<tr>
<td>• Contact Iarnrod Eireann.</td>
</tr>
<tr>
<td>• Check airflow to ensure adequate ventilation.</td>
</tr>
<tr>
<td>• Control use of internal combustion equipment within tunnel.</td>
</tr>
<tr>
<td>• Careful siting of breathing apparatus control - not within twenty metres of any air shafts (due to venting of smoke or risk of flashover).</td>
</tr>
<tr>
<td>• Restrict numbers and control movement of all personnel inside tunnel.</td>
</tr>
<tr>
<td>• Maintain communications.</td>
</tr>
<tr>
<td>• High visibility clothing.</td>
</tr>
<tr>
<td>• Maintain safe egress route.</td>
</tr>
<tr>
<td>• Ensure all personnel aware of evacuation signal.</td>
</tr>
<tr>
<td>• Establish water supply</td>
</tr>
<tr>
<td>• Monitor run-off of spilled liquids or contaminated water - inform local authority environment or sanitary services section if more than fifty litres.</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Considerations</th>
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</thead>
<tbody>
<tr>
<td>• Lighting equipment.</td>
</tr>
<tr>
<td>• Rail platelayers.</td>
</tr>
<tr>
<td>• Trolley to assist with movement of equipment.</td>
</tr>
<tr>
<td>• Gas detection equipment to monitor air in tunnel.</td>
</tr>
</tbody>
</table>
4.4.4 Road Tunnels

Hazards

- Potential lack of ventilation.
- Road traffic.
- Potential hazardous loads involved.
- Chemical Spillage.

Actions

- Liaise with Garda Síochána - incident location, details.
- Ensure road traffic stopped.
- Park in approach lay-by and obtain information from Garda Síochána before entering tunnel against direction of traffic flow.
- Check airflow to ensure adequate ventilation. Tunnel may have mechanical ventilation system (controlled from portal).
- Control use of internal combustion equipment within tunnel.
- Careful siting of breathing apparatus control - not within twenty metres of any air shafts (due to venting of smoke or risk of flashover).
- Approach incident with caution.
- Restrict numbers and control movement of all personnel inside tunnel.
- Maintain communications - handportable radio, or tunnel may have emergency telephones at intervals.
- Maintain safe egress route.
- Ensure all personnel aware of evacuation signal.
- Establish water supply - tunnel may have hydrants installed at intervals.
- Monitor run-off of spilled liquids or contaminated water - inform local authority environment or sanitary services section if more than fifty litres. Tunnel may have sumps to contain spillage. Sumps may be protected by a foam system (may need to be supplemented).

Considerations

- Lighting equipment.
- Gas detection equipment to monitor air in tunnel.
### 4.4.5 Aircraft

- See also 4.2.10 Fires Involving Aircraft

#### Hazards

- Aircraft fuel spillage
- Compressed gases/pressurised containers.
- Jet engines intakes and exhaust.
- Carbon fibres - particularly common in gliders and military aircraft.
- Decomposition of matrix following post crash fire will leave carbon fibre in an easily crumbled state.
- Metal fires;
- Hazardous loads.

#### Military Aircraft

- Ejection seats;
- Miniature detonating cords (MDC) on cockpit canopies;
- Radioactive substances;
- Small arms ammunition;
- Bombs - missiles - rocket projectiles;
- Nuclear weapons.

#### Actions

- Consider approach carefully;
- Use of different routes to scene;
- Wind direction;
- Do not block approach roads;
- Look out for survivors;
- Give accurate location of incident ASAP;
- Set up rendezvous point;
- Carbon fibres involved
  - wear full fire kit and BA during fire fighting;
  - during crash clearing up operations, BA / CPS should be worn;
  - wet decontamination required.
- Safe approach distance for jet engines that may still be running:
  - Front - 7.5 metres
  - Rear - 45 metres
- Foam blanket for fuel spillage;
- Remove ignition sources;
- Preservation of evidence;
- Do not remove or disturb wreckage (subject to rescues);
- Recover documents - hand to Garda Síochána;
- Locate flight recorders and leave in position.
Considerations

- Evacuation;
- Ground Casualties;
- Declaration of Major Emergency
- Close liaison with Garda Síochána and other Emergency Services;
- Accident Investigation;
- Location and identification of bodies;
- Additional fire fighting resources;
- Off road vehicles;
- Decontamination;
- Photographs.
### 4.4.6 Rail

- See also 4.4.3 Rail Tunnels

<table>
<thead>
<tr>
<th><strong>Hazards</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Rail traffic - high speed, long stopping distance.</td>
</tr>
<tr>
<td>• Possible hazardous materials in cargo.</td>
</tr>
<tr>
<td>• Difficult access - steep embankments.</td>
</tr>
<tr>
<td>• Difficult underfoot conditions, trip hazards.</td>
</tr>
<tr>
<td>• High voltage overhead lines.</td>
</tr>
<tr>
<td>• High voltage supplies on locomotives and carriages.</td>
</tr>
<tr>
<td>• Possible spillage of fuel.</td>
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</tbody>
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<thead>
<tr>
<th><strong>Actions</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Use bridges or crossings to gain access.</td>
</tr>
<tr>
<td>• Make contact with train driver or guard.</td>
</tr>
<tr>
<td>• Establish if persons involved.</td>
</tr>
<tr>
<td>• Ambulance for casualties.</td>
</tr>
</tbody>
</table>

**Ensure Safety of Personnel:**

- High visibility clothing.
- Inform Control of exact location of incident and request that contact be made with Iarnród Éireann Central Traffic Control and rail traffic be stopped.
- Do not allow personnel onto railway line until confirmation received from Iarnród Éireann that rail traffic has been stopped.
- Post lookouts for oncoming rail traffic 400 metres on each side of the incident - agree a warning signal for personnel.
- Do not approach within two metres of overhead electric lines or electrically operated trains until confirmation has been received from Iarnród Éireann that the electricity supply has been isolated.
- Before dealing with the incident, request train driver or guard to isolate train’s generators and electricity.
- Short extension ladders for access to trains.
- Search area thoroughly for casualties.

**Considerations**

- Early assistance message.
- Garda Síochána assistance.
- Are there other access routes?
- Could line rescue equipment assist with access for personnel and equipment?
- Water supply.
- Lighting.
- Major Emergency Plan?
- Avoid bringing road vehicles onto tracks.
- Transport of casualties over difficult ground can tire personnel - plan for frequent relief and refreshment.
4.4.7 Sewers

Hazards

- Sewer gas - may be flammable, toxic and explosive with certain limits.
- Oxygen deficiency.
- Weil’s Disease (Leptospirosis) - from rats’ urine.
- Toxic materials left to destroy rats.
- Wet and slippery conditions
- Sudden flooding.

Actions

- Contact surface personnel on arrival.
- Establish number of casualties.
- Establish direction of flow and last known position of casualties.
- Protective clothing, BA, plastic or rubber gloves.
- Four firefighters, two in search, one at foot of inspection cover, one at top.
- Open inspection covers either side of entry point to assist with ventilation.
- Evacuate casualties via nearest exit.
- Use spark-proof lamps and sewer trolley if available.
- Team to be equipped with resuscitation apparatus.
- Use intrinsically safe radios.

Considerations

- Early assistance message.
- Garda Síochána assistance required to close roads, guard inspection covers.
- Instigate no smoking zones.
- Maintain good hygiene - set up decontamination zone.
- Pipe sealers.
- Casualty may have travelled long distance downstream.
- Consider need for interception action.
- Consider weather conditions - contact Fire Control for information.
- Winch for rescue purposes.
- Local authority with plans of sewer system.
- Guide lines.
4.4.8 Silos

Hazards

• Exposure to toxic gases or vapours;
• Exposure to an oxygen deficient atmosphere;
• Possible explosion risk from flammable gases, vapours or dusts;
• Spontaneous ignition;
• Access to interior of silo may be dark, difficult and restricted.

Actions

NOTE: These Procedures are applicable for Silo Incidents or Incidents involving containers of a similar nature.

• Personnel should enter silo only if necessary;
• No firefighter or rescuer to enter silo unless wearing a breathing apparatus set which has been donned in fresh air;
• A rescue line or harness and line must be securely attached to each person entering the silo. The line should remain attached to the individual at all times whilst in the silo and be secured to a stable point outside the silo;

LINES SHOULD NOT BE ATTACHED TO THE BA SET;

• All entry points and lines employed under such circumstances must be under control and supervision at all times during the incident;
• All persons taking over the control of an entry point or line or relieving such persons should be fully briefed on the situation;
• BA entry procedures should be strictly adhered to;
• BA wearers should check gauges frequently;
• OiC and Entry Control Officer must be mindful of the type of rescues being attempted and the effect on duration times;
• May be on-site lifts that could be utilised; NOTE: At no time should the equipment or operator be redeployed whilst personnel are in the silo;
• Ensure resuscitation equipment is always immediately available;
• Fire fighting media should be made down.

Considerations

• Consider attendance of HP/TTL to assist with access/egress at high level;
• Consider assistance early on if operations are likely to be protracted;
• Consider attendance of specialist line rescue team.
• Consider the use of a thermal imaging camera if available.
4.4.9 Heights

Hazards

• Falls due to wind, slipping, damage to ropes.
• Falling objects.
• Bad weather.

Actions

• Safety of personnel - helmets, secure to structure, lighting.
• Minimum number of personnel aloft.
• Ensure sufficient length of rescue lines.
• Communications.
• Secure casualty - rescue strop, harness, or stretcher.
• Controlled lowering of casualty - clear rescue route.

Considerations

• Early assistance message.
• Specialist rope rescue team, if available.
• Personnel may be located at intermediate levels to assist lowering.
• Possibility of using aerial appliances.
• Climbing to top of structure, tree, etc. can involve significant effort.
4.4.10 Tower Cranes

**Hazards**

- Falls due to wind, slipping, damage to ropes.
- Falling objects.
- Moving machinery.
- Bad weather.

**Actions**

- Contact site management if available.
- Stop site work around crane.
- Safety of personnel - helmets, secure to structure, lighting.
- Minimum number of personnel aloft.
- Ensure sufficient length of rescue lines.
- Communications.
- Entry to control cabin - ensure casualty doesn’t fall out.
- Secure casualty - rescue strop, harness, or stretcher.
- Controlled lowering of casualty - clear rescue route.

**Considerations**

- Early assistance message.
- Specialist rope rescue team, if available.
- May use crane gear for controlled lowering.
- Personnel may be located at intermediate levels to assist lowering.
- Possibility of using aerial appliances.
- Climbing to top of tower can involve significant effort.
4.4.11 Cliff Rescue

**Hazards**

- Falls from cliff edge,
- Falls through damage to ropes or lines,
- Falling stones, rocks, loose soil, etc.,
- Wind,
- Unstable ground near cliff edge.

**Actions**

- Request attendance of Ambulance Service and Garda Síochána if required.
- Establish danger area - at least five metres from cliff edge.
- Establish working area.
- Locate casualties.

Rope rescue procedure:

- At least two secure anchor points.
- Check all ropes, connections, and equipment before use.
- Belay, harness and helmet for all personnel in danger area.
- Identify route for rescue - watch for hazards, such as loose stones, soil, sharp projections, etc.
- Two ropes at all times.
- Protect ropes.
- Communications - handportable radio, line signals, voice.
- Secure casualty - rescue strop, harness or stretcher.
- Lower casualty if suitable access to base of cliff.
- If necessary, raise casualty to cliff top using pulley block.

**Considerations**

- Early assistance message.
- Consider availability of voluntary/specialist assistance.
- Consider personnel requirements.
- Consider need for emergency team.
- Consider access to base of cliff.
- Consider locating a crew member (in contact with OiC by handportable radio) for vantage point on complete rescue operation.
- Lighting.
### 4.4.12 Collapsed Trench or Excavation

#### Hazards

- Further collapse of trench endangering casualty and firefighters/rescuers;
- Crush injuries or restriction of breathing of casualties;
- DEEP EXCAVATIONS - atmosphere may be oxygen deficient, flammable or toxic due to, for example, exhaust fumes, sewer gases, or gases from rubbish tips;
- Collapse of nearby buildings, walls or other structures;
- Unstable, or slippery, ground conditions.

#### Actions

- Contact on-site personnel;
- Make the trench safe by re-shoring the area - use on-site specialist advice and equipment if available;
- Designate at least one firefighter or officer to watch for any signs of further collapse;
- Gain access to excavation at a point protected by the support system;
- Locate and contact casualty;
- Personnel entering trench to have line attached so that they can not only be hauled out quickly, but can be traced, should a further collapse occur.
- Use of resuscitator, or BA set on victim to ensure air supply should a further collapse occur;
- Clear trench without causing further collapse;
- Consider the number of personnel required to ensure the task can be completed;
- Special equipment that may be required (e.g. specialised stretchers, floodlights, air bags etc.).
- Keep the number of firefighters in the trench to the minimum necessary;
- Maintain good access and egress for firefighters;
- Control strictly the movements of relief crews, other emergency personnel and public involved, especially around the edges of the trench.
Considerations

- Use of mechanical equipment, excavator etc. Not only for clearing debris but for holding back shoring or unstable ground. Avoid overloading ground close to trench,
- Specialist expert advice.
- Equipment carried on appliances such as ladders, rams, air bags etc.;
- Removal of loadings at ground level adjacent to trench;
- Plan reliefs and refreshments well in advance and ensure change over of crews is smooth;
- Consider requesting rope rescue team.
4.4.13 Water Rescues

**Hazards**

- Deep or fast-flowing water.
- Steep or unstable banks or access to water (e.g. under cut banks).
- Deep mud.
- Submerged obstacles (glass, bicycles, trolleys, etc.).
- Weil’s Disease (Leptospirosis).

**Actions**

- Establish holding area and equipment dump at least six metres from water.
- Direct all personnel working on or near water to wear buoyancy aids and secure with safety lines.
- Minimum number of personnel working near water.
- **AVOID ENTERING WATER IF POSSIBLE** - use throw-lines with buoyancy aids, ladders, etc.
- Ambulance for casualties.

**If Using Boat(s)**

- Ensure boat is in good repair.
- Use experienced personnel.
- Do not enter water from a boat.
- Do not enter a boat from water.
- Do not recover heavy objects or casualties into boat from water - opt to tow instead, if practicable.

**If Entering Water**

- Snagline should be placed diagonally across water, downstream.
- Suitable protective clothing should be worn - wet suit or dry suit and footwear.
  (Chemical protective clothing may be used for wading or in very cold conditions - not with breathing apparatus)
- All personnel entering water should be secured with a safety line.
- All safety lines should be supervised on shore by a crew member.

**Considerations**

- Protect casualties from cold - use blankets, etc.
- Be aware of discomfort or hardship to personnel - cold, wet conditions.
4.5 Miscellaneous Operational Procedures

4.5.1 Major Emergencies

**Definition**

"Beyond the normal capabilities of the emergency services"
- Rescue, treatment large number of casualties.
- Involvement either directly or indirectly of large number of people.
- Large amount media enquiries.
- Large combined resources of emergency services.
- Large mobilisation and organisation of emergency services and supporting organisations.

**Actions**

- Mobilise Senior Fire Officer for declaring ME
- Decision - Inform Control of situation "Major Incident".
- Liaise with Garda/ other Services.
- Set up Command and Control Post
- First Officer at scene - do not become involved, more important to determine size, scope and nature of incident, and mobilise resources.
- PDA for Major Incident:
  N pumps
  1 x CU + supporting appliance
  1 x ET

**Senior Officers**

- Set up rendezvous point
- Co-ordination liaison with Garda / Other Services.
- Preserve scene - Identification of casualties (Garda responsibility)
- Communications net for fire service
- Retaining track of crew

**Considerations**

- Protracted Nature of Incident
- Statements from crew members
- Video / photographs
- Liaison with media
- Visits to incident scene by VIPs.
### 4.5.2 Civil Disturbance

#### Hazards

- Attacks on uniformed personnel.

#### Actions

- Safety of personnel is paramount, second only to rescue of persons in danger from fire.
- Maintain discreet close liaison with Garda Síochána.
- Use only routes agreed by Garda Síochána.
- Appliances to respond to designated rendezvous points.
- Do not use two tones or blue flashing lights at any time.
- Maintain normal road speeds.
- Wear full fire fighting kit at all times.
- Appliance cab windows kept shut at all times.
- No Garda on appliances.
- Use portable radios discreetly.
- Drivers to remain in appliance with engine running.
- Do not get appliance blocked in e.g. reverse appliance into cul-de-sac.
- If required to retreat all crews, leave together.
- Crews to work together.
- Use minimum amount of equipment.
- Use hose lines direct from hydrant.
- Officers MUST ride appliances and NOT brigade cars.
- Evacuation for brigade personnel will be normal whistle procedure.

#### Considerations

- Holding areas for relief and additional appliances if required.
- Full briefing of all personnel.
- Continue close liaison with all other services.
4.5.3 Explosive Devices

Hazards

- Blast from explosion
- Overpressure
- Projectiles (debris, glass, etc.) propelled by explosion

Actions

- Hand-held radios must not be used within 10m of any explosives.
- Vehicle radios must not be used closer than 50m. (Radios to be switched off if appliances required closer than 50m).
- Set up Rendezvous Point.
- Defence Forces Explosive Ordnance (EOD) team or Garda Síochána experts should be consulted as to what is a safe area.
- Consult Garda Síochána about isolation of gas/electric and water supplies.
- If rescues required, use minimum number of personnel.
- High conspicuity jackets to be worn.
- Liaise closely with senior Garda Síochána officer present responsible for overall control/co-ordination.
- Senior Fire Brigade Officer present responsible for fire fighting and rescue operations in consultation with senior Garda Síochána officer.
- Maintain close liaison at all times with other services, especially Garda Síochána.
- Crowds standing by - safe distance, out of sight and line - remain in appliance facing away from incident with windows open. Safe distance - could be up to 600 metres.
- Crews should not search for explosive devices.

Considerations

- Fire fighting - consider ground monitors and hydrants
- Press/TV - Garda Síochána responsibility
- Crews to be kept away from large areas of glass
- Access and egress to and from scene
- Statement from brigade personnel
- Secondary devices
- Monitor crews closely for fatigue and stress
- Reliefs
- Good hygiene
- Specialist equipment.
4.5.4 Flooding (Large Volumes of Still or Fast-Flowing Water)

Hazards

- Weil’s disease (Leptospirosis)
- Water - deep or fast flowing
- Drowning

Actions

- Personal protective equipment for crew members
- Provide advance warning on roads
- Check houses for trapped persons
- Rescue trapped persons or animals
- Make down portable pumps only
- Make down output hoses to watercourses downstream of flood
- Ensure that correct filters are fitted to suction inlets
- Check filters frequently

Considerations

- Inability to reach trapped people or to reduce flood?
- Suitable downstream location for pumped water
- Use of boats or all-terrain vehicles
- Food and fuel for people trapped on high ground
- Evacuation centres for people rescued or displaced
- Salvage of building contents
- Use of sand bags to divert flood or to protect buildings
- Avoid fire appliance becoming stranded between two floods
- Avoid fire appliance stalling in deep water.
### 4.5.5 Fallen Trees

#### Hazards

- Cables - electric or ‘phone.
- Barbed wire.
- Working in stormy conditions, darkness.
- More falling trees.
- Appliances blocked by fallen trees.
- Operating chain saws can be extremely dangerous.

#### Actions

- Check the area for casualties or vehicles.
- Warn oncoming traffic - both sides of the road.
- At night time, light up the area well.
- Keep clear of power cables or unknown cables - get ESB to check and cut off power.
- Personal protective equipment for personnel using a chain saw.

#### Considerations

- Tired or fatigued personnel should not operate a chain saw.
- Keep a clear area around chain saw when starting or cutting - exclude Fire Service personnel (other than the operator), bystanders, animals.
- Cutting should not start until a clear work area is established and the operator has a secure footing and planned retreat path.
- Do not let the nose of the guide bar contact a log, branch, or any other obstacle - kickback.
- Cut at high engine speeds.
- Do not over-reach or cut above shoulder height.
- When cutting a limb that is under tension, be alert for springback - avoid being struck when tension in the wood fibres is released.
4.5.6 Environmental Incidents

Hazards
(to the environment)

Common pollutants:
• Food products (e.g. milk, cream)
• Oil or other petroleum products
• Agricultural pesticides
• Industrial biocides (e.g. timber treatments)
• Heavy metals
• Fertilisers
• Solvents, chemicals.

Actions

Inform local authority sanitary services or environmental services section.

Control at source - terminate discharge, cut off supply:
• Close valve
• Seal leaks
• Turn drums or containers so that leak is at the top
• Repair ruptured containers
• Upright vehicle
• Transfer material to another container.

Pipelines:
• It may be necessary to cease all discharges from trade premises and to temporarily seal the outlet point to waters or sewers.
• In the case of bursts or major leaks from pipelines, it might be necessary to temporarily cease pumping while the leak is repaired.

Contain spillage if possible
(This reduces the immediate threat, increases the retention time, permits effective treatment of spillage, reduces the amount of pollutant entering the environment.)
• Retain spilled material on land
• If spill has entered drains, streams, tributaries, stop it gaining access to larger bodies of water.
  Barriers may be:
### Actions (Contd...)

Physical: clay, sand, peat moss, straw, synthetic materials, etc.  
Interceptors: channels, sumps, dikes, lagoons, etc.  
Lagoons: need to consider degree of hazard posed by materials, volume to be contained, site suitability, time constraints.

### Considerations

- Final recovery, treatment or disposal of pollutants - local authority sanitary services or environmental services section.  
- Potential for pollution from fire products  
  - Food products: fire residue to be disposed of.  
  - Tyres: toxic gases, PAHs (poly-aromatic hydrocarbons), dioxins - can seriously contaminate soil and water  
  - Plastics: PVC  
  - Fertilisers: ammonia gas, and soluble ammonium nitrate.  
  - Paint: organohalogens, solvents, dioxins, colours, heavy metals.  
- Fire fighting foams:  
  - Film-forming flouroprotein (FFF) foams much less toxic than synthetic detergent foams.
4.6 Brigade Procedures

4.6.1 Accident Reporting

**Actions**

*First aid or medical attention should be provided for any crew member who receives an injury.*

A report should be made by the OIC in the event of injury to crew members during Fire Service activities (including training activities, responding to a call-out, or other activity).

The report should include:

- Date and time of injury
- Name and rank of injured person
- Location of incident
- Nature of injury
- Activity under way when injury occurred - what was the injured person doing?
- An account of how the injury occurred
- Names of witnesses who can give an account of events
- Sketch of scene of injury, if appropriate
- Items of equipment involved in the incident, and account of any malfunction
- Action taken in respect of malfunctioning equipment - taken off the run, preserved in case of investigation, etc.
- Further action necessary in respect of equipment- repairs to equipment, replacement of equipment, etc.

Most fire authorities have standard forms and accident reporting procedures. Officers should familiarise themselves with the forms and procedures in use in their own authority.
4.6.2 Accidents Involving Fire Brigade Vehicles

**Actions**

When the accident occurs, the driver must:

- Stop
- Give his/her name, address, vehicle owner’s name, address and registration number of the vehicle to anyone having reasonable grounds for requiring them.
- Obtain the names and addresses of any witnesses.
- Report the accident to the Garda Síochána as soon as reasonably practicable and in any case within 24 hours.
- Inform brigade headquarters by telephone or radio, giving the following information:
  
  (a) time, date and address of accident;
  (b) injuries to fire brigade personnel;
  (c) name of fire brigade driver;
  (d) registration number of fire brigade vehicle, station to which attached, extent of damage and whether availability of vehicle or appliances is affected;
  (e) if third party involved, extent of injuries and/or damage to third party;
  (f) whether any assistance is required e.g. ambulance, breakdown lorry etc.
- If the certificate of insurance is required by the Garda Síochána or any other person having reasonable grounds for requiring it, arrangements should be made via the senior officer.

**Action whilst proceeding to fires**

- The OiC must, if the vehicle is able to proceed, immediately detail a member of the crew to remain at the scene, with:
  
  (a) a first aid kit if anyone is injured;
  (b) an accident form, to obtain as much information as possible including names and addresses of witnesses.
- The position of the brigade vehicle or appliance should be marked by chalking the ground at each wheel before it is allowed to proceed to the incident.
4.6.3 Breathing Apparatus Control Procedures

At all times when Breathing Apparatus is in use on the fire ground (and/or during training) the procedures set out in *The Use of Breathing Apparatus in the Fire Service*, published by the Department of the Environment and Local Government (1995), should be followed.

### Stage 1

- At all incidents where breathing apparatus is used;
- Where the incident is small and unlikely to be protracted;
- Where no more than TWO Entry Control Points are used;
- Where the total number of BA wearers does not exceed TEN;
- Where NO branch guide lines or line communication are in use.

### Stage 2

- Required at larger incidents, where operations are likely to be protracted and a greater degree of control and supervision is required; and/or
- There are more than TWO Entry Control Points;
- More than TEN BA wearers committed;
- Branch guidelines are in use;
- Line communications are in use;

**NOTE:** When introduced, Stage 2 must apply to the whole incident.
SECTION 5  RUNNING THE FIRE STATION

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5.2 Testing and Servicing 5 - 3

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Section 5. Running the Fire Station

5.1 Operational Readiness

The first essential in running a fire station is to maintain the station’s ability to respond to emergencies. One important element in this regard is regular checking to ensure equipment is ready for use. The officer should assign duties to crew members, and supervise the work.

- Drivers should check that appliances assigned to them have an adequate fuel supply. (Normally, the fuel tank should be at least three quarters full.)

- The crew should check that all equipment is stored in the correct place, and is in working order.

- Breathing apparatus wearers should check breathing apparatus sets and ancillary equipment.

- All checks should be recorded in the station log book.

5.2 Testing and Servicing

Maintaining the operational readiness of the unit also requires the upkeep of the station and the appliances and equipment. Testing and maintenance of equipment ensures that equipment will work when required, and also helps secure the health and safety of personnel by ensuring equipment is in safe working order.

Standard tests are set down in respect of many items of Fire Service equipment and should be carried out at the recommended intervals. Other, non-standard, equipment may be supplied with manufacturer’s recommendations for testing and maintenance.

It is the responsibility of the officer to ensure that appropriate testing of equipment is carried out, and any necessary maintenance or repair seen to.

A record should be made of equipment tests, showing time and date of test, equipment tested, type of test, result, and any necessary
maintenance or repair. Requirements for maintenance or repair should be brought to the attention of workshop personnel or senior officers, as appropriate.

5.3 Record Keeping

It is important to the efficient running of a fire brigade to record details in the main areas of brigade activity. Records are used to monitor activity, plan for future needs, confirm that sufficient training is carried out, log emergency calls and turnouts, arrange associated payments to crews, confirm checking and testing of equipment, highlight necessary repairs, etc.

5.3.1 Pay Sheets

These are completed in respect of items for which the fire authority will need to make payments - telephone, electricity, gas, goods received, meals while attending fires, salaries and wages, retainers and payments for attendance at fires and drills, etc. The officer should confirm that goods or services were received, and that attendances are properly recorded.

5.3.2 Station Log

A log should be maintained at each station. Details should be recorded of all callouts and other significant occurrences. Particular note should be made of messages relating to operations. Calls received and transmitted by the station should also be recorded where the station acts as a communications base during incidents, etc.

For retained services, each call should be recorded, including the time of call, time of return of personnel responding, rate (normal rate, weekend rate, public holiday rate, etc.), type of call (fire, drill, special service, etc.)

5.3.3 Equipment Log Books

Log books are used in fire stations to record the use of items of equipment, such as appliances, portable pumps, breathing apparatus, etc. Entries should indicate the date of any use, the reason for the use of
the equipment (drill, fire, test, service, exercise), pumping time, mileage, fuel used, oil used, faults noticed, attention required.

5.4 Pre-Incident Planning

5.4.1 Introduction

The assessment of the situation is generally the first task for the officer-in-charge (OiC) of the Fire Service response to an emergency. Much of the information the OiC requires can be assembled in advance, thus saving valuable time at the scene of the incident, and can allow the OiC to begin assessment of the situation before arrival at the incident. This section introduces the subject of pre-incident planning and gives guidance to officers on how pre-incident planning may be carried out.

5.4.2 Situation Assessment

In assessing the situation on arrival at an incident, the OiC is seeking the answers to a number of questions. Consider the situation for an OiC of the first attendance, in the early hours, at a large building with which s/he is unfamiliar. The questions to which s/he will wish to know the answers are those listed in paragraph 3.2.1 of this handbook.

The answers to several of these questions can be obtained in advance of the fire and provided to the OiC on mobilisation to an incident. This can reduce significantly the time the OiC spends on situation assessment and allow him or her to formulate a plan and issue orders at an earlier stage. The time saved at the outset of the Fire Service response can be of significant value in initiating rescues and fire fighting as soon as possible.

5.4.3 Pre-Incident Planning

Pre-incident planning involves the collection and presentation of information about the station's turnout area and about specific risks within the turnout area. The primary purpose is to enhance the performance of the fire brigade attending at fires and other emergencies. Pre-incident planning provides the OiC with information which may be difficult or impossible to acquire under emergency conditions.
Having information available at the scene of the incident gives a number of advantages to the OiC:

- Initial operations can be more effective.
- Operations can be carried out more safely.
- The OiC’s decisions are more definite because s/he has a greater information base from which to work.

Generally, the premises which are prioritised for preparation of pre-incident plans are those with a high life risk (for example, hospitals, schools, dance halls, hostels), those with high fire risk (for example, certain factories or storage buildings), buildings which, because of their size or layout would pose difficulties in fire fighting, and other locations involving potential hazards.

5.4.4 Contents of Pre-Incident Plans

A pre-incident plan consists of a document with relevant information on a specific building, group of buildings, or other hazardous location. The format of presentation of the document should be standard so that the information can be easily found and assimilated by the officer or firefighter at the scene.

A Pre-incident Plan should normally include the following:

- Premises name and address, along with an indication of the trade or business carried out on the premises (for example, hotel, petrol station, etc.)

- Information on the number of occupants, daytime and nighttime, along with the number who may be sleeping on the premises.

- A description of the premises (number of floors, basement, floor area, height of building, type of construction, fixed fire fighting installations) and an indication of exposed buildings.

- Names of companies or organisations using the building, along with contact details (job, telephone numbers - day and night, addresses).
• Details of hydrants or other water sources in the vicinity.

• Details of hazardous materials or other risks on the premises.

• Operational notes, giving guidance to the OiC on priorities, strategy, tactics which may be used.

• A site plan showing the building and its surroundings, access points to the site for fire appliances, hydrants or other water supplies.

• A plan of the building, showing internal layout, entry points to the building, location of fire extinguishing installations, location of hazardous areas.

The information should be relevant to the primary purpose of the plan; i.e. the plan should contain information which will enable the OiC to enhance the performance and safety of the fire brigade at the incident scene. Information on a particular premises is usually compiled on the Pre-Fire Plan Inspection Form, and this is then edited to form a compact Risk Card which is carried or available to the officer on the responding appliance.

The site plan can be used to help the OiC decide the best position in which to site appliances responding to an incident.

In briefing the crew, the officer should be able to use the building plan to explain where s/he wants them to go and what s/he wants them to do. It should also enable him or her to follow the progress of crews within the building.

An example of the type of information collected (on a pre-fire planning form) for pre-incident planning purposes is shown at Fig. 5.4.7.A below, along with the risk card produced for the OiC. (Fig 5.4.7.B and D).
5.4.5 Gathering Information for Pre-Incident Plans

The prioritised premises in a brigade's turnout area should be inspected to produce pre-incident plans. The premises should be visited to gather the necessary information, which should be recorded and prepared in the standard format. The operators of premises may be able to supply plans, but these may have to be altered to show the required information clearly at a glance. Alternatively, the officer carrying out the inspection may have to prepare a simple plan.

Particular attention should be paid to life risks, noting the locations where persons on the premises may be located, especially persons who may be asleep or non-ambulant.

Details in respect of special risks, such as moving machinery or hazardous materials should also be noted carefully.

5.4.6 Other Uses for Pre-Incident Plans

Pre-incident plans may also be used in training, as part of a classroom or table top exercise.

The plan may also be used as a guide when follow-up visits are used to update plans.

The plan may be used in planning to deal with a specific incident.

The plan may be used in setting out pre-determined attendances for specific buildings or for specific areas within a brigade's turnout area.

5.4.7 Pre-Incident Plan

An example of the type of information collected (on a pre-fire planning form) for pre-incident planning purposes is shown below, along with the risk card produced for the OiC.
Figure 5.4.7.A  
Example of Pre-Fire Plan Inspection Form  

<table>
<thead>
<tr>
<th>Premises Name:</th>
<th>Holywell Nursing Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number: 21</td>
<td>Street/Road: Bush Road</td>
</tr>
<tr>
<td>Subarea:</td>
<td>Town/Village/City: Holywell</td>
</tr>
<tr>
<td>Townland: Holywell</td>
<td>Location details: 3km along Bush Road from junction with Steeple Road</td>
</tr>
<tr>
<td>Alias name(s):</td>
<td>Bush House</td>
</tr>
<tr>
<td>Trade or business:</td>
<td>Nursing home for psychiatric patients</td>
</tr>
<tr>
<td>Phone: 011-3846752</td>
<td>Map Sq.: A-23-41</td>
</tr>
<tr>
<td>Station name:</td>
<td>EE06</td>
</tr>
<tr>
<td>District: 2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OCCUPANTS</th>
<th>NIGHT (18.00-08.00)</th>
<th>DAY (08.00-18.00)</th>
<th>Number Sleeping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of occupants</td>
<td>132</td>
<td>88</td>
<td>84</td>
</tr>
<tr>
<td>Number non-ambulant</td>
<td>6</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Evacuation staff</td>
<td>10</td>
<td>4</td>
<td>-</td>
</tr>
</tbody>
</table>

Salvage Priorities: 2 (no.) dialysis machines from treatment room on ground floor

Night Watch: Yes/No Yes Guard Dog: Yes/No No Handler: Yes/No No

DESCRIPTION OF PREMISES

Ground floor area: 1920 m² No. of floors (including ground floor): 4
Basement Yes/No No Height from ground to eaves of roof: 14m
Type of construction:
General: four blocks connected
Frame: masonry walls Floors: timber Roof: timber frame and slate
Stairs: concrete Walls (external): stone and brick
Fixed fire fighting systems: internal hose reels (30m) throughout
Separation - External walls of premises are less than 12m from adjacent premises on 1 side(s).
### MULTI-OCCUPANCY

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Occupier (company name)</th>
<th>Trade or business</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Holywell Nursing Home</td>
<td>Nursing home for psychiatric patients</td>
</tr>
<tr>
<td>2</td>
<td>Nurses’ quarters</td>
<td>Residence for nurses</td>
</tr>
</tbody>
</table>

### PREMISES CONTACTS

<table>
<thead>
<tr>
<th>Ref</th>
<th>Name</th>
<th>Address</th>
<th>Function</th>
<th>Day ‘phone</th>
<th>Night ‘phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Not applicable</td>
<td>Holywell</td>
<td>Staff sister</td>
<td>011-3846752</td>
<td>011-3846752</td>
</tr>
<tr>
<td>2</td>
<td>Michael Finn</td>
<td>21 Styles Way, Holywell</td>
<td>Stores</td>
<td>011-3846752</td>
<td>011-3840035</td>
</tr>
<tr>
<td>1</td>
<td>Not applicable</td>
<td>Holywell</td>
<td>Porter</td>
<td>011-3846752</td>
<td>011-3846752</td>
</tr>
<tr>
<td>2</td>
<td>Not applicable</td>
<td>Holywell</td>
<td>Staff sister</td>
<td>011-3846752</td>
<td>011-3846752</td>
</tr>
</tbody>
</table>

### HYDRANT SURVEY

<table>
<thead>
<tr>
<th>Date</th>
<th>Type</th>
<th>Time</th>
<th>Flow (l/min)</th>
<th>Static pressure (bar)</th>
<th>Owner</th>
<th>Condition</th>
<th>Grid ref</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.98</td>
<td>S</td>
<td>14.30</td>
<td>200</td>
<td>5</td>
<td>la</td>
<td>serviceable</td>
<td>123456-541361</td>
<td>Entrance road</td>
</tr>
<tr>
<td>7.98</td>
<td>S</td>
<td>14.40</td>
<td>200</td>
<td>5</td>
<td>la</td>
<td>serviceable</td>
<td>123457-541367</td>
<td>Entrance road</td>
</tr>
<tr>
<td>7.98</td>
<td>B</td>
<td>14.50</td>
<td>250</td>
<td>5</td>
<td>private</td>
<td>serviceable</td>
<td>123458-541363</td>
<td>South side of building</td>
</tr>
<tr>
<td>7.98</td>
<td>B</td>
<td>15.00</td>
<td>240</td>
<td>5</td>
<td>private</td>
<td>serviceable</td>
<td>123459-541364</td>
<td>Rear of building</td>
</tr>
<tr>
<td>7.98</td>
<td>B</td>
<td>15.10</td>
<td>230</td>
<td>5</td>
<td>private</td>
<td>serviceable</td>
<td>123451-541366</td>
<td>Rear of building</td>
</tr>
<tr>
<td>7.98</td>
<td>B</td>
<td>15.30</td>
<td>150</td>
<td>5</td>
<td>private</td>
<td>serviceable</td>
<td>123452-541367</td>
<td>Courtyard</td>
</tr>
</tbody>
</table>

Bypass valve on water meter? YES/NO Yes (If yes, indicate location on plan)
### Other water sources

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity (m³)</th>
<th>Grid ref</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tullymore</td>
<td>Reservoir</td>
<td>1000</td>
<td>124651-542710</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.5km along Bush Road towards Steeple Road</td>
</tr>
</tbody>
</table>

Is the water supply adequate to deal with the risk? YES/NO Yes

If open sources available, detail method of drawing water in operational notes.
What do you recommend to deal with inadequate water supply? - use operational notes.

### CHEMICALS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Location</th>
<th>Quantity</th>
<th>SIN (UN No.)</th>
<th>Action (EAC)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### OTHER RISKS

<table>
<thead>
<tr>
<th>Risk</th>
<th>Location</th>
<th>Quantity</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPG tanks</td>
<td>Rear entrance</td>
<td>2 x 2 tonnes</td>
<td>Operational procedure 4.3.9</td>
</tr>
<tr>
<td>Oil tanks - fuel oil</td>
<td>Rear entrance</td>
<td>2 x 10 000 litres</td>
<td>Keep fire from spreading to main building</td>
</tr>
<tr>
<td>Mattresses and blankets</td>
<td>Area stores</td>
<td>large</td>
<td></td>
</tr>
<tr>
<td>Electricity supply</td>
<td>Main entrance</td>
<td>50 kVA</td>
<td>Isolate supply - contact ESB</td>
</tr>
</tbody>
</table>
OPERATIONAL NOTES

Adult psychiatric patients. Some patients are quite elderly and non-ambulant. As a result of medication, other patients are also non-ambulant, with a higher number at night. These non-ambulant patients are in wards 1, 2, 3 and 4 on the ground floor. The private hydrants are fed from the reservoir at Tullymore. Flow from hydrant in the courtyard is inadequate.

Priorities of action by first attendance

1. Open bypass valve
2. Evacuate premises

Inspecting officer: Ian Dunne
Date: 31st July, 2002
Station: Watch:

Risk category (HQ use only)

Building density: 2
Building construction: 3
Total points: 14
No. or storeys: 4
Occupancy rating: 5
Risk category: B1

Required attendance:
Water tender(s): 2
Ambulance(s): 1
Special appliance(s) (type and no.): HP - 1
Other:

Remarks:

Is a risk card required? YES/NO Yes
(If yes, forward relevant info. with this form.)

CFO signature: Date:
## Figure 5.4.7.B

**Example of Risk Card**

<table>
<thead>
<tr>
<th>Card number: EE-06-011</th>
<th>District: 2</th>
<th>Station: EE-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premises name: Holywell Nursing Home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address: Bush Road, Holywell</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade/business: Nursing Home</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Priorities:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Open bypass valve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Evacuate patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salvage: 2 (no.) dialysis machines from treatment room on ground floor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required attendance:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water tenders: 2</td>
<td>Special appliances: HP x 1</td>
<td>Other:</td>
</tr>
<tr>
<td>Ambulance(s) 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### CONTACTS

<table>
<thead>
<tr>
<th>Name</th>
<th>Function</th>
<th>'Phone (day)'</th>
<th>'Phone (night)'</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>Staff sister</td>
<td>011-3846752</td>
<td>011-3846752</td>
</tr>
<tr>
<td>N/A</td>
<td>Porter</td>
<td>011-3846752</td>
<td>011-3840035</td>
</tr>
<tr>
<td>Michael Finn</td>
<td>Store keeper</td>
<td>011-3846752</td>
<td>011-3846752</td>
</tr>
</tbody>
</table>

### OCCUPANTS

<table>
<thead>
<tr>
<th>Day</th>
<th>Night</th>
<th>Sleeping</th>
</tr>
</thead>
<tbody>
<tr>
<td>132</td>
<td>88</td>
<td>84</td>
</tr>
<tr>
<td>6</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>-</td>
</tr>
</tbody>
</table>

### HAZARDS

<table>
<thead>
<tr>
<th>Location</th>
<th>Quantity</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPG tanks</td>
<td>Rear</td>
<td>2 x 2 tonnes</td>
</tr>
<tr>
<td>Oil tanks - fuel oil</td>
<td>Rear</td>
<td>2 x 10 000 litres</td>
</tr>
<tr>
<td>Matresses and blankets</td>
<td>Area stores</td>
<td>Large</td>
</tr>
<tr>
<td>Electricity supply</td>
<td>Main entrance</td>
<td>Isolate supply - contact ESB</td>
</tr>
</tbody>
</table>
DESCRIPTION OF PREMISES

Floors: 4  Height: 14m  Basement: No
Four blocks connected

Floors: Timber  Roof: Timber frame - slate  Stairs: Concrete
Walls (external): stone and brick

OPERATIONAL NOTES

Night watch: Yes  Guard dog: No  Handler: N/A

Adult psychiatric patients. Some patients are quite elderly and non-ambulant. As a result of medication, other patients are non-ambulant, with a higher number at night. These non-ambulant patients are in wards 1, 2, 3 and 4 on the ground floor. The private hydrants are fed from the reservoir at Tullymore. Flow from the hydrant in the courtyard inadequate.
Figure 5.4.7.C

Example of Location Map for Risk Card

Holywell Nursing Home
Location Map (scale 1:20 000)
Figure 5.4.7.D
Example of Site Plan for Risk Card

Hydrants
H1S - 200 litres per minute
H2S - 200 lpm
H3S - 250 lpm
H4S - 240 lpm
H5S - 230 lpm
H6S - 150 lpm

LPG - shut-off valve at tanks

Oil - shut-off valve at tanks

Electricity - isolation switch at main entrance

Fixed fire fighting equipment - internal hose reels (30m) throughout
5.5 Safety, Health and Welfare

5.5.1 Fire Authority Policy and Arrangements

As required by safety, health and welfare legislation, fire authorities will have in place a safety statement detailing the authority’s policy in respect of safety, health and welfare and with arrangements to give effect to the policy. Officers should familiarise themselves with the policy and arrangements and should operate the fire station in accordance with them. (See also Section 7)
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Section 6. Training and Instruction

6.1 Introduction

Training of personnel is an important element in the development of effective Fire Services. Officers have responsibility for ongoing training of the crews under their command, and may also be involved with training of recruits or other training activities. This section of the handbook is intended to assist officers in their involvement in this area.

6.2 Instructional Techniques

This section outlines the essential elements of instructional techniques appropriate to most Fire Service training. Other techniques may also be used from time to time in the Fire Service, but these are not dealt with here. Teaching and supervision of standard drills are dealt with in section 6.3.

Officers should endeavour to develop instructional skills, and should improve by practice as outlined in the following paragraphs.

6.2.1 Planning and Preparing

In preparing a presentation for a training session, the first essential is to be clear on the objective(s) of the session. In some cases, the objective(s) will be set down for the Instructor; at other times, the Instructor may have to set the objective(s). Objectives for training sessions should be clear and realistic. The Instructor should be able to form a sound judgement after the session as to whether the objective(s) have been met. Objectives should be related to the length of the training session, the number of students, their level of existing knowledge, and how quickly they can be expected to learn.

For example, a training need on the part of personnel may be identified in the area of radio procedures. The objectives for a training session might be: "At the end of a fifty minute classroom presentation, students will:

• understand the uses to which hand portable radios can be put on the fireground,
• know the proper procedure for use of hand portable radios on the fireground, and,

• be able to pass information accurately and effectively by hand portable radio."

This training session would involve presentation by the Instructor of information on the uses and procedure for hand portable radios, as well as demonstration and practice of the use of the radios by the participants to confirm the training and establish that objectives were met.

The content of the lesson should be considered carefully, and should be related to the objectives. (For example, in the case illustrated above, there would be no need to include material on the electronic circuitry of a hand portable radio.)

The Instructor should also consider the students, their number, general level of knowledge, knowledge of the subject matter to be presented, etc. Where this information is unknown, the Instructor should find out as much as s/he can.

The Instructor should assemble and familiarise himself or herself with the relevant information for the training session. The Instructor should not proceed with any training activity where s/he is not satisfied that s/he has access to sufficient information to provide the training required.

A lesson plan should be prepared by the Instructor; the different elements of a lesson plan are dealt with in paragraph 6.2.2. To establish an accurate timing for the material to be presented, a rehearsal may be undertaken.

The location for the training should be chosen by the Instructor and any advance booking arranged. In many cases, a classroom or lecture room will be suitable; sometimes instruction may be carried out in an appliance bay or in the open air. The Instructor should aim to find the best location for the provision of training. The Instructor should also
make any necessary arrangements for the classroom or other facilities to be used. Keys should be available for access, and any necessary arrangements for light, heat, and power for projectors, videos, etc., made. The ideal conditions for training may not always be available, but arrangements should be as good as the Instructor can make them in the circumstances.

The Instructor should, in advance of the lesson, ensure that s/he has all the necessary training aids available in the classroom (or other area to be used) and ready to use.

6.2.2 The Lesson Plan

There are generally three parts to the lesson - the beginning, middle and end.

6.2.2.1 Beginning the Lesson

There should be a formal beginning, assembling the class and establishing the attention of the students. Where appropriate, the Instructor should introduce himself or herself and carry out a roll call of the class.

Preliminaries should be dealt with, covering safety arrangements (evacuation, assembly points, etc.), length of session, where these are considered appropriate.

Where a link with previous training exists, a minute or two may be spent on revision; this may take the form of questions on the material previously covered. This can provide a base to work from and attune the students' minds to the subject under study.

The subject to be dealt with in the session should be introduced. The Instructor should also promote the desire to learn on the part of the students, outlining the aim or objective of the session, the reason why the training is being provided, and the incentive or reason the session should be of interest to the class. The Instructor should indicate whether questions from the class will be dealt with during the session, or at the end.
6.2.2.2 The Middle

The main instruction is provided in the middle of the lesson. The subject material should be presented, using visual aids where appropriate. Where a skill is being taught (for example, a knot), the Instructor should demonstrate slowly, allow all students the opportunity to imitate under supervision, and confirm with repetition and practice.

Irrelevant material should be pruned from the presentation, and the relevant material presented in logical order, divided into stages. The instruction should be confirmed at each stage (for example, by using questions to students to confirm if they understand the material, or asking students to demonstrate the skill being taught).

The use of aids to assist the presentation by way of illustration or demonstration should be considered to make the lesson easier for the class to understand. They can also assist in maintaining interest. Visual aids such as black or white boards, overhead projectors and transparencies, or flip charts are widely available and commonly used. Slides or videos are also common. It is important to remember, particularly when using video, that aids should not take the place of the Instructor; they should only be used to assist him or her.

Where a skill is being taught, aids to the instruction are particularly valuable. (For example, when teaching the donning procedure of a breathing apparatus set, the availability of one or more sets for demonstration and for students to practice would be a necessity.)

6.2.2.3 The End of the Lesson

- At the end of the lesson, the Instructor should summarise and review what has been covered, emphasising the main points.
• The Instructor should deal with any questions from the class.

• Where appropriate, a test on the material covered may be staged.

• Materials should be packed up.

• The Instructor should conclude by looking forward to the next training session, taking the opportunity to obtain the interest of the class, and outlining what will be covered.

A summary lesson plan is given in Figure 6.2.2.3. Officers may find this summary useful when planning lessons.
Figure 6.2.2.3

Summary Lesson Plan

PLANNING AND PREPARING
  Objective(s) of the session
  Knowledge of material to be taught
  Class - numbers, existing knowledge, etc.
  Content - arrange in logical order
  Rehearsal?
  Training aids - in working order
  Location for training?
  Access to classroom
  Heat, light, power

BEGINNING OF THE LESSON
  Preliminaries
    Formal start
    Introduction - yourself?
    Roll call?
  Safety (exit routes, assembly points, etc.)
  Revision (questions or practice)
  Introduction to lesson
    Aim, reason, incentive
    Questions (when)

MIDDLE
  Main instruction
  Knowledge
    Present stages and confirm each
  Skills
    Explain, demonstrate, imitate, practice
  Aids to be used

END OF THE LESSON
  Summary (emphasise main points)
  Questions, comments
  Test?
  Pack up
  Look forward
6.2.3 Instruction Technique

The approach and manner of the Instructor is an important feature of training. This paragraph sets out some considerations for Instructors.

The Instructor should deal with personnel in a fair, firm but friendly manner, should display enthusiasm and confidence, and should encourage personnel.

A good, clear and audible speaking voice assists communication and helps maintain attention. Avoid speaking in a monotone.

The Instructor should aim to maintain the interest of personnel, making clear the aim of activities, and making personnel feel their contribution is important. (See 6.2.4 below.)

Instructors should be punctual, avoiding keeping students waiting, and making the best use of time available.

The Instructor's dress, appearance and bearing should be appropriate to the occasion and to the objectives of the session.

6.2.4 Promotion and Maintenance of the Desire to Learn

A good Instructor will aim to promote a desire to learn among students, and maintain the desire.

An Instructor may be faced with a group of students who are not particularly interested in learning. The onus is then on the Instructor to arouse their interest and make them want to learn. The desire to learn can be promoted in a number of ways.

Before the class, the Instructor can create interest by reflecting on a previous period, by providing an interesting programme, designed to attract attention and keep students fully informed, and using connections which will arouse curiosity and promote interest in the subject.
At the outset of the class, the Instructor can emphasise

- the aim of the lesson, a clear statement of what is to be learned,
- the reason why it is important that the class learn it, and,
- incentive(s), any reward to be gained, material or otherwise, from learning the subject.

Throughout the instruction, an Instructor can maintain the desire to learn in a number of ways.

- Enthusiasm. - an enthusiastic Instructor will transfer enthusiasm to the class.

- Activity. - a lesson should involve maximum activity, mental when teaching facts, and physical when teaching skills.

- Use of the five senses. - students will learn more quickly and effectively if instruction is designed to take maximum advantage of as many senses as possible, hearing, sight, touch, smell, taste.

- Realism. - instruction should be realistic and relate to everyday life, simulating the conditions and effects, and using a convincing story. Ensure that the practical application of the instruction is understood.

- Simplicity. - nothing will be learned unless it is understood. Present instruction at the level of the particular class being taught.

- Variety. - instructors should be imaginative and seek variety in instruction. Good aids, and different ways of presentation should be used.

- Avoidance of distractions. - distractions caused by bad conditions of work or by Instructors' mannerisms should be prevented or avoided.
6.2.5 Confirmation

Confirmation ensures that one step in the lesson is made firm before another is attempted; it is necessary at all stages of learning to make certain that students are learning. Confirmation also allows the Instructor to pause at intervals, allowing students to clear up doubts or queries they may have. Confirmation provides students with an incentive to learn and develops a sense of progress and achievement.

At the outset of a lesson, previously taught material may be confirmed to make certain the class has the knowledge on which new instruction is to be based.

During a lesson, confirm at the end of each stage, to ensure that students have understood, before progressing to the next stage.

At the end of a lesson, confirmation should be used to ensure that the aim or objective has been achieved.

Confirmation may be done in a number of ways. Use of alternatives gives variety. Oral or written tests may be used, or performance tests for skills. These may be incorporated in revision periods, quiz periods, discussions, exercises, or competitions.

The use of questions is a common method of confirmation of training. See 6.2.6 for some material on use of questions for confirmation and dealing with students' questions.

6.2.6 Question Technique

Questions may be put to a class by an Instructor, or may be asked of the Instructor by students.

6.2.6.1 Questions by the Instructor

Instructors may use questions to a class for a number of purposes:
to test receipt of learning, by checking the knowledge of the class,

to teach, by making students reason out answers for themselves, or,

to achieve activity, and keep the class alert.

One questioning method commonly used, sometimes known as \textit{pause and pounce}, is to direct a question to the class as a whole, give time for the whole class to think out an answer, and then nominate a student to give an answer.

(Question - pause - student.)

Questions to class should be readily understood; avoid ambiguity.

Avoid questions to invite students to simply guess the answer; ask them to explain the reason for their answer to ensure that answers come from understanding rather than guess work.

Questions are of limited value in assessing skills; a performance test is a better way to confirm skills.

Avoid questions which test students' powers of expression, unless this is the aim of the session.

\textbf{6.2.6.2 Questions from the Class}

Questions from the class, where relevant, can be useful to an Instructor, and can be used to help him or her to confirm the instruction.

Where a question covers a point already taught, the Instructor can put it back to the class to see if other students picked it up. If other students don't know the answer, there may be a problem with the way in which the instruction was given; this should be rectified by the Instructor. Reflecting the question in this way also helps activity in the class.
Where a question deals with a point still to be taught, the Instructor should indicate that it will be dealt with later in the lesson, or in the next training session, as appropriate.

Where s/he doesn't know the answer to a question, an Instructor should not hide this from the class. Offer to find out and give the answer at another time. The Instructor should ensure that this offer is made good.

If a question not relevant to the objectives of the session is put by a student, the Instructor should not get side tracked. Where the question is genuine on the student's part, the Instructor should deal with it constructively, encouraging the student's interest, but not allowing time to be wasted. If the Instructor feels an irrelevant question is a deliberate waste of time, or is an attempt to mislead, the question should be stopped as quickly as possible and the lesson continued.

6.3. Teaching and Supervision of Drills

6.3.1 Introduction

Standard drills play an important part in Fire Service recruit training, and may also be used in ongoing brigade training. The purpose of standard drills is to achieve uniformity in the basic training of personnel to use appliances and equipment, and to ensure that appliances and equipment can be used with speed, efficiency, confidence and without confusion. Standard drills are set out in the *Fire-Fighter Handbook* - Section 4.

This section outlines the approach to be adopted in detailing and supervising drills.

6.3.2 Planning and Preparing

The Instructor should, in advance of the lesson, ensure that s/he is familiar with the objectives and all other aspects of the drill, and with the appropriate safety provisions.
The Instructor should ensure that any drill being carried out under his or her direction is performed in a safe manner, using accepted practices.

Where it is necessary to work in difficult or adverse conditions (darkness or bad weather), the Instructor should judge the advisability of undertaking training in such conditions and introduce such extra safety precautions as may be necessary.

- The Instructor should ensure that any equipment to be used is in proper working order; standard tests should be used where appropriate.
- Prior to beginning a drill, the Instructor should ensure that all the equipment necessary for the drill is on the appliance.
- The Instructor should ensure that the appliance is positioned to best advantage for the drill.

6.3.3 The Lesson Plan

6.3.3.1 Beginning of Lesson

In order to establish the tempo of the session, a formal start should be made. The squad should be fell in, brought to attention, dressed, and numbered. Where appropriate, the Instructor should introduce himself or herself and carry out a roll call of the squad.

6.3.3.2 Preliminaries

The squad should be briefed on the arrangements made for safety during the session, including words of command. Arrangements in respect of bad weather conditions should also be indicated. (For example, onset of severe weather, or development of high winds during ladder drills may necessitate abandoning the session.)

Arrangements in respect of first aid or medical attention in the case of an accident involving injury should be outlined, where appropriate.
The area in which crews are to work should be indicated, with areas to be out-of-bounds (so as to avoid hazards, or prevent disruption of other activities in the area, etc.) also made clear.

The squad should be located in the best position, taking into account weather, ability to hear orders, ability of observing crews to see the crew at work, etc.

The equipment to be used in the drill should be detailed, and personnel given an opportunity to familiarise themselves with the equipment and its operation, where appropriate (for example, where an appliance not normally used by the crew is being used, the arrangements for engaging power take-off may be unfamiliar).

6.3.3.3 Revision

In order to emphasise earlier training upon which the session will build, or to confirm earlier training, some revision may be appropriate at this point. Revision may be in the form of questions on the earlier training, or practice of the procedures learned. (For example, Hydrant drill HD2.2 is an extension of HD2.1; some revision of HD2.1 would be useful before teaching HD2.2.)

6.3.3.4 Introducing the Drill

The drill to be taught should be introduced, explaining the aim or objective of the drill, the reason why the drill is being taught, and an incentive for the squad to participate in the drill.

6.3.3.5 Middle

The Instructor should detail the drill to be taught or practised, explaining the words of command to be used and the tasks to be carried out by crew members.

Where working with a large squad, the crew to carry out the drills should be selected from the squad.
The Instructor should ensure that each member of the crew knows what his or her role is in the drill, and is happy that s/he can carry it out. This may be done in the case of recruit trainees by a demonstration by an experienced crew, by use of visual aids, or by a step-by-step direction of the crew by the Instructor. Trainees then imitate, following the example set in the demonstration, in slow time and having faults corrected as they occur. This may need to be repeated, and questions should be dealt with.

When the Instructor is happy that the crew is sufficiently briefed and can carry out the required tasks, repetition of the drill in quick time may be used as practice and/or confirmation of the lesson. (The crew may be got to work from the seated position in the appliance, or from ground level, as decided by the Instructor.) Again, the Instructor should closely supervise the drill, noting and correcting mistakes, and monitoring the safety of personnel. It is important that each crew member should understand not only his or her own duties, but also those of other members of the crew in which s/he is working. The value of CHANGING NUMBERS during instruction is emphasised.

Where working with a large squad from which a crew to carry out drills is selected, it is important to change crews so as to ensure that all squad members receive adequate instruction.

6.3.3.6 End of Lesson

At the end of the lesson, the Instructor should summarise and review what has been learned, commenting on the quality of the work and acknowledging where effort is put in by personnel. Comments or queries from the squad should be invited and dealt with, where possible.

All equipment should be packed up and returned to its proper place.
In bringing the session to a close, the Instructor should look forward to the next training session, outlining what will be covered.

A summary lesson plan, outlining the material contained above is given at 6.3.6. Officers may find this summary useful as an aid to memory in conducting drills.

6.3.4 Techniques of Drill Instruction

The approach and manner of the Instructor is an important feature of drill instruction.

- The Instructor should deal with personnel in a fair, firm but friendly manner, should display enthusiasm and confidence, and should encourage personnel.

- A good (loud and clear) word of command maintains attention and avoids confusion. A good appearance and bearing also aids control; the Instructor should stand to attention while detailing the drill.

The Instructor should aim to maintain the interest of personnel, making clear the aim of activities, using enthusiasm, activity (maintaining the tempo of work), variety, attention to conditions of work, avoidance of distractions, and making personnel feel their contribution is important.

When taking drills, the Instructor should stand in such a position as to see and be seen, hear and be heard, while the whole drill is being carried out.

In the early stages of training, long detail should not be given. A portion only should be given, and executed on the command "AS FAR AS DETAILED - CARRY ON". For confirmation, all messages during drills should be repeated to the sender.

The make-up should be performed as smartly as the make-down.
6.3.5 Safety in Drill Instruction

The Instructor should ensure that any drill being carried out under his or her direction is performed in a safe manner, using accepted practices, having regard to the circumstances and conditions under which the drills are performed.

It is the responsibility of each member of the crew taking part in a drill to carry out his or her function in such a way that neither s/he or any other crew member is put at unnecessary risk.

The dress to be worn when participating in a drill should be made clear by the Instructor. Normally, full fire fighting kit, with helmet, tunic, leggings, boots should be worn. The Instructor may decide that the normal protective clothing can be relaxed, where appropriate. (For example, in very warm weather, performing physical activities in fire fighting tunic and leggings may be unduly hard on crew members, and the Instructor may allow lighter clothing to be worn. Normally, helmets should be worn for all drills.)

Personal jewellery (watches, bracelets, rings, etc.) should be removed prior to taking part in any drill. Items, such as rings which cannot be removed, should be made as safe as practicable, for example, by taping over them. If neckerchiefs or scarves are worn, they should be folded rather than knotted, and should be covered by the tunic collar.

All personnel participating in drills should be aware of the words of command STILL, REST, STAND FROM UNDER and their use. (See Fire Brigade Drills Section 4 Fire-fighter Handbook)

For drills using appliances, the driver should ensure, before leaving the driving seat, that the hand brake is firmly on and that the gear lever is in neutral. The driver should ensure that all equipment is correctly stowed, that all doors are properly closed, and that the power take-off is disengaged before driving off. The driver should ensure, before reversing, that a crew member is positioned at the rear of the appliance, in clear view of the driver, to act as a guide and make sure the area is clear.
6.3.6 Fire Service Drill Instruction

A summary lesson plan is given.

**Figure 6.3.6**
Summary Lesson Plan

<table>
<thead>
<tr>
<th>PLANNING AND PREPARING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge of Drill</strong></td>
</tr>
<tr>
<td>Equipment available?</td>
</tr>
<tr>
<td>Appliance position?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BEGINNING OF LESSON</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Preliminaries</strong></td>
</tr>
<tr>
<td>Formal start (FALL IN, etc.)</td>
</tr>
<tr>
<td>Introduction - yourself?</td>
</tr>
<tr>
<td>Roll call?</td>
</tr>
<tr>
<td>Safety (accidents, words of command, protective clothing, jewellery, etc.)</td>
</tr>
<tr>
<td>First aid, medical</td>
</tr>
<tr>
<td>Place of work</td>
</tr>
<tr>
<td>Crew position?</td>
</tr>
<tr>
<td>Equipment to be used</td>
</tr>
<tr>
<td>Familiarisation with equipment?</td>
</tr>
<tr>
<td>Weather</td>
</tr>
<tr>
<td>Revision (Questions or practice)</td>
</tr>
<tr>
<td>Introduction to drill</td>
</tr>
<tr>
<td><strong>Objective, reason, incentive</strong></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>MIDDLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain</td>
</tr>
<tr>
<td>Good word of command</td>
</tr>
<tr>
<td>Demonstrate?</td>
</tr>
<tr>
<td>Imitate?</td>
</tr>
<tr>
<td>Practice/Confirm</td>
</tr>
<tr>
<td>Maintain control</td>
</tr>
<tr>
<td>Correct mistakes</td>
</tr>
<tr>
<td>Ensure safety</td>
</tr>
<tr>
<td>Be confident</td>
</tr>
<tr>
<td>Encourage</td>
</tr>
<tr>
<td>Maintain contact</td>
</tr>
<tr>
<td>Maintain tempo</td>
</tr>
<tr>
<td>Keep an eye on observers</td>
</tr>
<tr>
<td>Make-up</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>END OF LESSON</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Summary</strong> (emphasise main points)</td>
</tr>
<tr>
<td>Comment, questions</td>
</tr>
<tr>
<td>Packing up</td>
</tr>
<tr>
<td>Look forward</td>
</tr>
</tbody>
</table>


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6.4. Planning and Staging of Exercises

6.4.1 Introduction

Exercises play an important part in Fire Service training; they can be used for teaching or confirming training, or to advance training at all levels. They may be used to promote a desire to learn, through use of variety, realism and activity. Exercises can also encourage enthusiasm and create incentive by giving participants a sense of achievement. Exercises may also be used to test procedures or working arrangements. Exercises can involve significant use of time and resources and for this reason careful planning should be involved to ensure that the maximum benefit is obtained.

This section provides guidance on the planning and staging of exercises for training purposes. Small exercises may not involve all of the considerations set out, but officers planning exercises should ensure that sufficient care goes into the planning and staging of all exercises under their control.

6.4.2 Planning an Exercise

When setting out to prepare a training exercise, the author of the exercise should first be clear on what is the objective of the exercise and on who is to be involved in the exercise. Normally, exercises are used either to teach or to confirm knowledge or skills imparted. For example, an officer may provide a training exercise on-station to confirm a crew’s ability to apply extrication techniques taught previously. This exercise would focus on the tasks to be carried out by crew members and on their application of knowledge and skills.

Where an exercise is intended to teach the tactical deployment of resources at a large incident or major emergency, the objectives and focus of the exercise would generally relate to the deployment rather than to specific tasks crews or individuals would be dealing with.

Ideally, exercises are carried out under conditions as close as possible to the actual conditions under which Fire Service personnel operate, but this is not always possible, given the variation in possible working
situations and other constraints. The instructor normally has to compromise and aim to provide the most realistic conditions obtainable, consistent with safety and the objective(s) of the exercise. The existing state of training or knowledge of the exercise participants may also be a constraint.

The officer must decide the type of exercise to be staged and the scope of the exercise. Exercises may be run at full scale, with all of the equipment and procedures in use as they would be in a real operation, or may be run at limited scale, with models or drawings used to convey the details of the exercise and illustrate the operation.

Use of scale exercises may enable training to be provided within limited space and time, or using limited facilities, while adequately serving the required purposes. This approach would not be suitable in all cases, however, and full scale deployment on the fireground, training building, or drill yard may be necessary.

Having decided on the type of exercise to be used, the instructor should consider the location to be used for the exercise and any equipment or materials which will be necessary.

Arrangements should be made for someone to be in charge of the exercise staging, the exercise director. In many cases, the instructor will be the exercise director; sometimes the exercise director will stage an exercise planned by someone else.

The exercise director should start the exercise, control its progress, and terminate the exercise. Depending on the size and complexity of the exercise, or on special hazards involved, the director may require assistance from an exercise staff.

The exercise director should make arrangements for permission to use the planned location as well as equipment and materials. Approval should be sought from any affected or interested persons or organisations.
Arrangements should also be made, as appropriate, for:
- accommodation,
- welfare (food and rest facilities, etc.),
- fuelling (and refuelling),
- transport (assembly and dispersal),
- bad weather arrangements,
- effects (maps, plans, fires, casualties, etc.).

A narrative and background to the exercise should be prepared. An exercise can be like a stage play; there must be a story behind it, and it helps if the audience knows something about the background beforehand. All exercise staff should be familiar with the narrative and background. Exercise participants will be given this information by way of briefing in advance of the exercise.

All activities involved in the staging of the exercise should be detailed in an Exercise Order, which should be made known in advance to all those involved in the staging. Copies of the order (perhaps with less complete information if some aspect of the exercise are confidential) should also be made available for information to observers for the exercise. The order should include contact details for the exercise director in case of queries arising in respect of the exercise. The order should detail the situation, mission, execution, administration, and communication.

6.4.2.1 Situation

The situation should detail the narrative, setting out the context in which the exercise is to be staged. For example, for an exercise involving an incident at a chemical/pharmaceutical plant, the situation may be that an explosion has been reported in the solvent recovery section of the plant and, while the plant has been shut down, persons are reported missing.

6.4.2.2 Mission

The mission should set out what is to be achieved by those participating in the exercise. For example, a crew may be required to carry out a rescue from a training building, with dummies used to represent casualties.
6.4.2.3 Execution

The factors which affect the execution of the tasks should be set out. These would include the date and time of the exercise, time allowed for the exercise, a general outline of the scope of the exercise, an indication of the organisations or personnel participating, assembly and dispersal points, an outline of how the exercise will be conducted.

6.4.2.4 Administration

This covers general arrangements for the exercise, including dress for exercise staff and participants, equipment required, transport arrangements if necessary, arrangements in case of bad weather, arrangements in respect of safety in the conduct of the exercise, and arrangements for first aid or medical attention in case of injury. Arrangements for subsequent analysis of the exercise, and debriefing of participants should also be set out.

6.4.2.5 Communications

The arrangements for communications should be clear. Separate arrangements may be made for communications between exercise participants and for communications between exercise staff. There may be a need, for example, for exercise staff to operate on a different radio channel to those used by participants. Other communications necessary for the exercise should also be noted. For example, letters to landowners may be required to confirm permission to use a particular location for the exercise, etc.

A briefing for umpires may also be necessary. This may be given verbally at a meeting prior to the exercise, or may be written in advance in the case of large or complex exercises. Information given should include time and place of assembly, outline of exercise, action to be taken by umpires and particular points to watch, communication arrangements, etc.
Observers, who have a part to play in reporting or providing feedback on the exercise (as opposed to spectators who are not required to participate in debriefing), should also be briefed on the exercise and on particular points to note.

Where effects, such as fire and smoke, are required for an exercise, arrangements for these should be made, including arrangements for safety. If the effects constitute a sizeable part of a large exercise, the exercise director may wish to devote some members of the exercise staff to this area.

### 6.4.3 Staging an Exercise

The conduct of the exercise should be under the control of the exercise director, who should keep an eye on the exercise as a whole and ensure activities are directed towards the objectives. Immediately prior to the exercise, a check should be made of arrangements in place. Every effort should be made to initiate the exercise on time, and to finish on time.

Good presentation should be used to show the exercise off to best advantage. Attention to detail in the planning of the exercise is important in this respect.

The exercise director should delegate tasks to exercise staff, encouraging incentive and involvement with the success of the exercise.

Exercise staff should allow the exercise to take its course and should not intervene unless there is a danger or inconvenience to personnel or the public. Too much intervention or control by exercise staff will counteract the realism of the exercise, and can inhibit initiative and adaptability.

The exercise director should monitor the exercise to ensure that progress is made towards the objectives. If necessary, an exercise can be stopped and restarted with changes to improve the outcome, but this should only be considered if the value of the exercise is in danger of being lost.
It is for the exercise director to decide when the exercise has run its course, or when sufficient progress has been made towards the objectives. At this point the exercise should be stood down. The exercise director should take account of the conditions under which personnel are working in deciding if further effort in the exercise is worth continuing to work.

6.4.4 Review and Debrief

Exercises should be followed by a review and debrief of the personnel involved. This may be done immediately on conclusion of the exercise, or may follow some days later if personnel are tired or if time is short. Sometimes, a short review immediately after the exercise can be useful, followed by a full debrief later on.

The purpose is to identify and confirm lessons from the exercise, acknowledging the efforts and contribution of participants.

The exercise director will generally have a review involving exercise staff and observers before involving all participants.

There should be a general discussion, allowing all those who took part in the exercise to comment and give constructive criticism, bearing in mind the objective(s) of the exercise. The exercise director should use the discussion to allow the participants to identify lessons emerging from the exercise; this can be more acceptable (especially where criticism of participants’ actions is involved) than the director giving his or her own view.

The exercise director should then review the exercise, noting if the participants’ mission was achieved and complimenting good work done. Even if the mission was not fully achieved, the good points should be brought out and acknowledged, and the weaker points discussed as part of the teaching process, not as recrimination.

Where failures are due to the exercise director or staff rather than to the participants, these are generally not discussed with the participants at this stage, but it should certainly not be suggested that participants are responsible.
6.4.5 Post-Exercise

After the exercise, all buildings or land used should be left in the condition in which they were provided. Persons who facilitated the exercise should be thanked appropriately. Equipment used should be returned in good condition. The contribution of exercise staff should be acknowledged.

If appropriate, the exercise director should produce a report on the exercise. This may be a short report, noting that the exercise was held, or may be a more thorough report where the exercise was large or important lessons were identified. The report may be useful to someone planning a similar exercise in the future, giving useful information on the organisation and helping to avoid mistakes.

6.5 Identifying Training Needs

6.5.1 Introduction

Part of the role of an officer in the Fire Service is to provide training for the personnel under his or her command or to assist in the provision of training. In this connection, an important element in the officer’s job is to identify training needs of personnel. This section gives guidance for officers when examining the training needs of personnel, and outlines some initial considerations on the planning of training to address identified needs.

6.5.2 Identification of Needs

When an officer sees a shortfall in the ability of personnel to achieve a set objective, consideration should be given to whether the shortfall may indicate a training need. Not all shortfalls can be addressed by training, but an officer should consider whether the skills and knowledge of the crew, or of individuals in the crew, are sufficient for the provision of effective and efficient emergency services. (For example, difficulties in priming a pump when working from an open source may indicate a lack of familiarity with pump operation, or an inability to diagnose faults and identify remedies. Crew members who
are expected to operate pumps at emergencies may need to have their knowledge and skills in this area developed through training.)

Where it is considered that a training need may exist, it should be based on known and accepted work requirements. The gap between the expected standard of performance and the present level should be made clear so as to provide a basis to plan what the training response will be.

It may be helpful to consider the area of work involved, examining the following issues:

- The task to be carried out should be examined.
- Any skills necessary for the work should be noted, as well as knowledge required and the desired attitude of personnel.
- Comparing the identified skills, knowledge, and tasks with the levels existing in the crew, the officer can begin to identify the specific training required to address the gap.

For example, an officer may notice at a fire that crew members detailed to slip and pitch a 13.5 metre ladder to a building took a longer than acceptable time to get the ladder in place, or that the crew members did not appear to have good control of the ladder in raising it to the building. This may indicate a lack of familiarity with the ladder, arising perhaps from infrequent use. Devoting some time during on-station training to drills or other training involving the ladder may be sufficient to close the performance gap and restore the crew's ability to demonstrate safe and efficient use of ladders on the fireground.

Training needs may also arise where new tasks are proposed for personnel, or where the approach to existing tasks needs to be changed. In this situation, the training need is likely to apply to the whole crew, rather than to individuals. (For example, in the case of road traffic accidents, the approach of Fire Services to casualty extrication and to co-operation with the Ambulance Service has been changing.) Again, the gap between present and proposed performance should be clarified and appropriate skills, knowledge and attitudes considered.
Where an officer feels that an individual crew member does not display the appropriate skills, knowledge or attitude for the job, s/he should aim to identify any problems the job may present to the crew member and consider how they may be addressed by training. Individual training needs may be met by the training provided for the crew as a whole, or may require specific attention at the individual level. In some situations, the officer may feel, in the case of an individual crew member, that the situation may be addressed by an informal contact with the crew member, with the officer providing coaching or guidance, rather than by specific training activities.

6.6 Training Programmes

Having identified training needs, or when working with given training needs, the officer should plan carefully how the training needs will be met. This may need to be planned in consultation with a senior officer, especially where a significant training effort is envisaged, or may be arranged as part of on-station training by a junior officer. Frequently, an annual training programme will be in place, which sets out the general use of allocated training periods for the year. A level of flexibility may be provided for variations in the programme to meet changing circumstances. In any case, the junior officer should keep the appropriate senior officer briefed on training matters, including any identified needs and proposed responses, as well as keeping records of training undertaken.

At the outset of planning a training programme, the objectives should be clearly stated. The question you ask yourself should not be what training should I provide?, but what changes do I wish to see in the performance of the crew or individual? If the second question can be answered clearly, this will indicate the main objectives for the training to be provided.

Consideration should then be given to how the training will be provided to meet the objectives set out. There are a number of questions you may wish to consider.

Who are the trainees? How could the training objectives best be met? Is there a need for formal training, or could the need be met by informal
contact or coaching between an officer and the crew member(s) concerned? If training is thought necessary, should training be provided within your fire authority, or should trainees be sent to participate in training provided by an external organisation?

If in-house, can some or all of the training be delivered by the junior officer? Is there a role for senior officers? Are special skills or knowledge required? Would it help to involve people from outside the Fire Service?

Is there a need for special expenditure, or can the training be provided as part of planned or ongoing training?

6.7 Sources of Information

6.7.1 Introduction

Fire Service officers may need to acquire information from time to time so as to develop their own knowledge or to assemble information for training activities they may undertake in their role as instructors. This section sets out information for officers on the common sources of information on Fire Service related matters.

6.7.2 Other Fire Service Officers

Probably the best way to begin to source information on the area of work of the Fire Service is to enquire of other officers whether they know of sources of information relevant to your area of interest. Many officers will, over time, have assembled information on topics of interest to them and may have examined the very topic in which you are interested. Officers may be able to tell you of their own knowledge and experience, refer you to someone else who can help you, or may be able to tell you where some published material (for example, books, journals, videos, etc.) is available.

In most fire authorities, a good deal of reference material is available in the headquarters, and if you enquire of officers at headquarters, they may have information which is of use to you, again, either from their own knowledge and experience, or by way of reference to publications.
6.7.3 Handbooks/Training Course Notes

Notes which accompany the input on training courses (for example, those provided by the Fire Services Council) contain a good deal of information relevant to the work of Fire Service Officers and can be a good source of information, as well as including, in some cases, suggestions for further reading on particular topics.

6.7.4 Common Publications

6.7.4.1 Fire Services Council Fire-Fighter Handbook

This handbook provides general information on fire services, as well as specific sections covering equipment and procedures, such as standard drills, necessary for efficient and safe operations. All officers should be familiar with this book.

6.7.4.2 Fire Service Manuals

The following publications are produced by HM Fire Service Inspectorate in the United Kingdom, and contain a good deal of useful information on many aspects of Fire Services. A list of the manuals is given below. Most fire authorities have a set of manuals.

- Book 2 Fire Brigade Equipment (1992)

Fire Service Manuals

- Fire Service Manual Volume 1 - Fire Service Technology Equipment and Media
  - Physics and chemistry for firefighters
  - Communications and Mobilising
• Fire Service Manual Volume 2 - Fire Service Operations
  - Marine Incidents
  - Aircraft Incidents
  - Incident command
  - Electricity
  - Compartment fires and Tactical Ventilation
  - Firefighting Foam
  - Safe Working near, on or in Water
  - Rope Working

• Fire Service Manual Volume 4 - Fire Service Training
  - Guidance and compliance Framework for Compartment Fire Behaviour Training
  - Guidance, compliance and Training Framework for Rope Working

• Manual of Firemanship
  - Book 3  Hand pumps, extinguishers and foam equipment*
  - Book 4  Incidents involving aircraft, shipping and railways
  - Book 5  Ladders and appliances
  - Book 6  Breathing apparatus and resuscitation
  - Book 7  Hydraulics, pumps and pump operation
  - Book 11 Practical firemanship I*
  - Book 12 Practical firemanship II
  - Part 6b Practical firemanship II*
  - Part 6c Practical firemanship III

* Part of the content of these publications has been replaced by the relevant Fire Service Manual.
• Technical bulletin
  - 1/1993 Operational incidents in tunnels and underground structures
  - 1/1994 Periodic inspection and testing of fire service equipment

6.7.4.3 Periodicals, Journal, Magazines

A large number of periodicals are published on Fire Services and related topics. Many are published in the United Kingdom and are in English. Featured generally are news items of interest to the Fire Service, coverage of fire fighting and fire safety related products and equipment, articles on significant fires and operational and legislative issues. Officers should find out what periodicals are available in their authority. Among the more commonly seen in fire authorities in Ireland are:

• Fire - The journal of the fire protection profession, published monthly by FMJ International Publications, Ltd.
• Fire Prevention - published monthly by the Fire Protection Association (UK).
• NFPA Journal - published by the USA National Fire Protection Association.

6.7.4.4 Books

Books on Fire Service related topics are published frequently and, again, a certain amount will be available in your authority.

6.7.4.5 Videos

An increasing number of videos are being produced which can be used in Fire Service training and officers can also use them for their own information. Again, your authority will likely have a number of videos on Fire Service related topics which you may wish to view.
6.7.4.6 CD ROM

Increasingly, information is being made available on compact disc CD ROM (Read Only Memory). These discs can store a large amount of information which can be quickly retrieved. You will, of course, require access to a computer capable of accommodating compact discs (CDs).

6.7.5 Public Libraries

Your local public library, which is provided by the local authority, may be able to help you by arranging a loan of material which you require from another library. You should try and provide as much information as you can about the publication you require, so as to facilitate the library to find it.

6.7.6 The Internet

Officers who have access to an Internet-enabled computer will find a large amount of information available to them, on almost any topic. Many Internet sites are devoted to fire, rescue and emergency operations, and to fire and emergency service organisations. The large amounts of information generally available on the Internet call for officers to be discerning in gathering information. In particular, when sourcing information for training purposes, it is important not to lose the essential message or knowledge concerned in a training activity by providing students with too much unnecessary detail or irrelevant information.

Most public libraries can provide access to the Internet.

6.7.7 Accuracy of Information

When using material, such as course notes, books, journal articles, etc., you should always try to ensure the information you are using is as accurate and up-to-date as possible.
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7.1 General

7.1.1 Introduction

Whilst, technology may provide better apparatus and protection, firefighting and rescue require the maximum human endeavour and effort.

Safety is a matter of primary concern to the Fire Service. Safety procedures are intended to protect the individual, and to sustain teamwork during hazardous operations. Fire officers have a management responsibility for the safety of firefighters.

General requirements in relation to Safety Health and Welfare are outlined in the Fire-fighters handbook. This chapter looks at the responsibility of the Junior Officer.

The creation of an effective organisation for health and safety is central to the management of risks and the reduction of accidental loss and ill health. This will involve the development of a positive safety culture in which the health and safety objectives are seen by all as an inherent part of the organisation. This will involve adequate management control and an effective policy of training and development. The Junior Officer has a key role to play in the development and maintenance of a positive Health and Safety Culture. Appendix 7.1.

Safety is part of the responsibility of the Junior Officer. The Junior Officer fulfils a critical role in enabling the Fire Authority carry out its duties in regard to the Safety Health and Welfare of the crew. The demeanour, attitude and competence of the Officer are critical elements in enhancing and maintaining the cohesion and welfare of the crew on station, during training and at the operational incident.

7.1.2 Legislation

The principal aims of the legislation are to:

- place general obligations as regards safety and health at work on employers, employees and on others,
- lay down a basis for managing health and safety in the workplace,
- ensure that employers and employees consult on safety and health matters,
- bring about a preventive approach to avoiding workplace accidents and ill health.

Section 6 of the Safety, Health and Welfare at Work Act, 1989 specifies general duties of employers to their employees.

"It shall be the duty of every employer to ensure as far as is reasonably practicable the Safety, Health and Welfare at work of all his employees".

"Reasonably practicable" means that the effort that the employer is expected to expend with regard to time, money, and effort on safety is proportional to the risk. An employer must take adequate precautions based on an assessment of the risk associated with a particular hazard.

Employees have general duties under Section 9 of the Act not to endanger themselves or others through their acts or omissions while at work. The Act also requires employees to use such suitable protective clothing or equipment as is provided in such a manner as to provide the protection intended.

7.1.3 The Safety Statement

Section 12 of the Safety, Health and Welfare at Work Act, 1989 requires employers and self-employed persons to prepare a Safety Statement specifying the manner in which the safety, health and welfare of persons at work is secured.

The Safety Statement represents the Fire Services commitment to Safety and Health in the Work Place. The framework for developing an effective safety statement is laid down in Section 12 of the Act.
The Safety Statement must address the following areas:

- Identify the hazards in the workplace,
- Assess the risks arising from these hazards,
- Specify the manner in which safety, health and welfare is to be secured,
- Give details of the arrangements made and resources provided for securing safety, health and welfare,
- Specify the co-operation required from employees in safety and health matters,
- Include the names and job titles of people responsible for safety and health in the organisation,
- Contain the arrangements for consultation with employees on safety and health matters,
- Include details of information available to employees on safety and health.

A well produced safety statement promotes the ownership of safety, throughout the organisation and will have a positive long-term effect. The Safety Statement should be constantly reviewed as the brigade changes. Whilst a major portion of the work will go into producing a Safety Statement, this is not the end of the process, but the beginning. If management can enlist the aid of the workforce in its preparation, then it will go a long way to sell the issue of Safety, Health and Welfare amongst the employees. Communication is a vital part of this process.

In particular, Section 12(3) requires that the Safety Statement shall be based upon an identification of the hazards and an assessment of the risks. These are described in Appendix 7.2.

Once hazards have been identified, then it is necessary to control the associated risks. The type and immediacy of control action will vary depending on the risk to personnel that the hazard poses. The majority of hazards will be of a minor nature and can be solved at station level. A written hazard reporting procedure is an important method of communication. A hazard report book should be kept at each station, and employees should be encouraged to use this procedure.
This procedure should use the chain of command to deal with hazards promptly and effectively. The hazard report should not be passed up the line without relevant action or comment from the Junior Officer.

7.2 Safe Place at Work

7.2.1 Introduction

The place of work for Fire Service personnel would include:

(i) Station and training areas.
(ii) Fire Appliance.
(iii) Fire and other emergencies.
(iv) Site visits.

The most effective strategy for the reduction of hazards is their elimination or containment at source by proper design of the work place. In the examination of the work place it must be remembered that people are fallible and will make errors. Regular safety inspections and audits should be incorporated into station routine.

Each area has to be examined so as to identify the hazards and risks likely to be encountered. This examination should be carried out in a methodical manner. It may not be possible or reasonably practicable to eliminate all risks but, once identified, risks from hazards can be reduced. Contractors and visitors to stations should be made aware of the inherent hazards.

In the Fire Service the application of the appropriate control measure is determined by a number of factors, including the scale of the risk and its consequences, the amount of control over the work situation and the cost. Whilst elimination of the risk is the ideal strategy, this may not be achievable so other control strategies have to be implemented.

The Fire Service therefore has to devote a great deal of effort to the creation of a safe person, so control measures are in the areas of Safe Work Procedure, Training, Personal Protective Equipment and Supervision.
The safety of all personnel at an incident is one of the principal considerations of the officer in charge. This must be established by assessing the hazards that are present, the possible risks to those at the scene, and the adoption of appropriate safe systems of work.

Upon the arrival of the initial attendance, the first task of the Officer in Charge must be to gather information, evaluate the situation and then apply professional judgement to decide the most appropriate course of action. Hazards must be identified and the risks to fire fighters, the public and the environment considered. The benefits of proceeding with a task must be weighed carefully against the risks. It is important to THINK BEFORE YOU ACT RATHER THAN ACT BEFORE YOU THINK. The consequences of a wrong decision at this stage may be irreversible.

The thought process must begin when the first details of the incident are received and should take into account any pre-incident information which is carried, on appliances. It is important, however, not to place too much reliance on such information until its accuracy has been confirmed at the incident.

The Fire Service philosophy to risk assessment at operational incidents can be encapsulated in the following:

- Fire fighters will take some risk to save saveable life,
- Fire fighters will take little risk to save saveable property,
- Fire fighters will not take any risk to save life or property which is already lost.

The term Dynamic Risk Assessment is used to describe the continuing assessment of risk in a rapidly changing environment where what is being assessed is developing as the process itself is being undertaken. This forms a key part of the incident management system, whereby the incident is divided into functional and geographic sectors. At an incident this process is complicated for the officer in charge by the fact that rescues have to be performed, exposures protected and the fire surrounded before a complete appreciation of all the facts. Risk assessment at an incident is a continual process.
An incident can be divided into three stages;

- The initial stage,
- The developmental stage,
- The closing stage.

The key elements of risk assessment have already been described. In applying control measures, the Officer in Charge must balance between the safety of personnel and the operational needs of the incident. The Officer in Charge must ensure that the safety procedures are followed and that so far as is reasonably practicable under the circumstances risks are eliminated or at least reduced to the minimum commensurate with the needs of the task. However, because personnel may be working in smaller teams, everyone must be constantly aware of their own safety as well as that of their colleagues and others who may be affected by the incident or work activity.

### 7.2.2 Safe Access and Egress

At both station and incidents safe access and egress routes are critical and these routes must be kept clear and safe at all times.

### 7.2.3 Safe Plant and Machinery

Plant and machinery available to the Fire Service is constantly developing. When a new piece of equipment is being introduced into the brigade adequate training in its use is essential.

Fire Brigade equipment has to have a very high degree of reliability; it must work when required. Maintenance is a critical element in the care of equipment. Standard tests are in place for every piece of equipment. Specific periods of test are laid down in the manuals and these should be incorporated into station routine. A preventative maintenance program is a key feature of any loss control program.
7.3 Safe Systems of Work

7.3.1 Introduction

Systems of work must be planned, organised, performed and maintained so as to be safe and without risk to health. Standard Operating Procedures are necessary, both on Station, so that routine work is carried out safely and efficiently, and at the incident. These procedures must be systematic, methodical and practical.

7.3.2 Standard Operating Procedures

To counter the normal confusion of any incident standard operating procedures are developed. Fires grow and behave in dynamic ways and cannot be fought with static ideas and techniques. It is not possible to give each officer experience of every type of situation he might face. Standard operating procedures should form a framework that allows the officers and fire fighting crews react to the constantly changing situation.

The role of the Officer-in-Charge cannot be hampered by laborious and unnecessarily tedious systems that are not realistic and will ultimately be self-defeating. On the other hand s/he must be able to work within a framework based on the best advice and experience both from within and outside the service.

Generic procedures are described in section four of this handbook; these procedures should not be adopted at face value but rather should be examined and tailored to the operational practices of each brigade. In developing standard operating procedures, consultation must take place with those involved. In this way, ownership of safety is promoted by involving those directly concerned. Also, the benefits of collective wisdom and experience can be accumulated. Training and the production of procedures are inter-dependant. Feedback should be actively sought on the implementation of any procedures. Standard operating procedures must be constantly reviewed in the light of current knowledge. Experience gained at incidents is invaluable.
7.3.3 Information and Supervision

There is an obligation on the employer to provide such information, instruction, training, and supervision as is necessary to ensure the safety and health at work of employees.

7.4 Training

7.4.1 Introduction

On the fireground, personnel have to fall back on their training and experience to allow them operate effectively. Most training deals with the inherent skills and the ability of the fire-fighter to perform basic tasks and responsibilities. Regular training forms a vital part of a fire-fighters experience. A high proportion of a fire-fighter’s life is spent training and retraining.

Fire personnel undertake tasks that expose them to risks in order to protect or rescue other people. However, a dilemma may arise in training where the benefits accrued have to be weighed up against the risks taken. Fire personnel have to be as fully prepared as is reasonably practicable for the hazards on the fireground. It follows that training must be as realistic as possible. However, disputes have arisen in the past where proper explanation was not given for the needs and reasons for such training. Communication is of vital importance, and where problems have arisen, generally it is through lack of communication.

The term reasonably practicable has a special significance for fire service training. Training has to be assessed so that personnel are not placed in unnecessary risk. On the other hand, training that does not induce a sense of realism and give an appreciation of the dangers involved and so ensure the need for care and attention for both the fire-fighter and colleagues is not of much benefit to the fire-fighter. The activities to which a fire-fighter is exposed can be frightening (e.g. working at heights, exposure to heat and smoke, working in confined spaces). Unless a fire fighter has experienced these fears and has learnt to control them, there is a danger that s/he may get into hazardous circumstances on the fireground and may become a victim. S/he must
be confident also in the ability of colleagues and officers. Each of these aspects is developed in training, but only if it is undertaken under realistic conditions. Therefore, it may be necessary to deliberately expose the fire-fighter to risk on the training ground.

The fire-fighter is most at risk in the uncontrolled environment on the fireground. If, in order to safeguard safety on the fireground, the employer has to expose fire-fighters to an element of risk on the training ground, then this is acceptable provided all reasonable precautions and safeguards are taken. This exposure to risk on the training ground must be planned and carried out under adequate supervision and with sensible and prudent precautions and safeguards.

Proficiency in basic skills should be inherent. Training must be varied so that it does not become routine and boring. Training programs should offer a good deal of variety. The training received by each fire-fighter and officer must be recorded and reviewed at regular intervals to ensure that each person is adequately trained. Allied to this training must be a system of assessment to ensure the competency of the officers and crews and that training is continually improved to meet the changing needs of the service.

Ultimately, only by training being as realistic as is reasonably practicable, having regard to the need to take all reasonable safety precautions, can the fire-fighter be adequately prepared for the incidents s/he may face. It must be recognised that different safeguards are appropriate to fire-fighters than to other workers whose activities can be planned. At all times, the objectives of this training must be clearly identified and defined in an environment that reflects the needs and responsibility of the individual.

Assessment is required to ensure that training meets its set objectives and that trainees are qualified and competent to undertake the activities for which they have been trained. Details of Fire Service training methods are contained in Section 6 of this handbook.
7.4.2 Manual Handling

Many of the accidents that occur in the fire service are as a result of poor manual handling. Proper manual handling training must be appropriate to the activities, e.g. the simple action of getting in and out of an appliance properly. A well-organised manual-handling regime should provide:

- Instruction from a properly trained and qualified instructor,
- Proper Supervision,
- Adequate documentation and records.

7.4.3 Pre-Incident Planning.

Of vital importance to the fire-fighter is to know the topography of the station ground and its inherent risks. Unfortunately, in large urban areas local knowledge is being lost. Fire-fighters may live in the suburbs on one side of a city and drive to work on the other side. Large urban developments take place that can completely change the streetscape. The loss of this local knowledge must be balanced by a comprehensive information gathering exercise that is ongoing i.e. Pre-fire Planning. This forms the basis of a hazard identification and risk assessment analysis of the station ground. A prior knowledge of the hazards will reduce the consequent risk.

Major changes are taking place within our urban areas. It is no longer feasible to rely totally on the local knowledge of the fire-fighter, but rather this must be supplemented by information in record form. These records would contain information such as access routes, water supplies, key holders and contact telephone numbers, all of which must be constantly updated. All visits to high-risk premises should be properly documented. The pre-fire plan must present the information in a practical and logical way to the Officer-in-Charge on the fireground. Information must be relevant and a balance has to be struck, as too much information will lead to information overload.

To successfully tackle a fire or other incident safely, the Fire Service needs to get there as soon as possible with sufficient resources. Pre-fire
planning and the proper determination of a predetermined attendance will at least reduce some of the unknown hazards that may be presented.

Having a pre-fire plan of the incident will allow the officer to gain control of the incident earlier and more effectively, thus facilitating the control and co-ordination of crew actions so that everyone is working towards a common goal.

The operational crews should be involved in gathering this information, to ensure that they will become familiar with the major risks on their station ground. The information gathered can be used in training sessions and can be communicated to other crews. Pre-fire planning is described in chapter 5 of this Handbook.

### 7.5 Supervision

A chain of command exists in the Fire Service, which is intended to ensure that it can function effectively in times of stress. Each person must be accountable for the responsibilities commensurate with the position in that chain of command.

The crew of an appliance forms the core of Fire Service activities. All training is carried out as part of a team. The team leader is the Officer-in-Charge of that appliance and s/he must seek at all times to ensure that the crew can carry out its activities as safely as possible. Imparting of information to the crew both in training and on the fireground is very important.

Discipline is essential on the fireground and on station for the safety of personnel. The Officer must be aware of problems, which may affect the well being of the personnel under his/her command. Each Officer must be aware that s/he is responsible and accountable for those under her/him. There should be no ambiguities in this regard, and it is important to keep the balance right and motivation high.
At operational incidents, the appropriate span of control must be exercised at all times and may vary from having 2 to 5 officers reporting to a superior, depending on the stability of the situation and the degree of risk involved.

A junior officer Officer-in-Charge may control small incidents involving one or two crews. However, the larger incident may require the supervision of a number of junior officers in control of sectors reporting to a Senior Officer.

At major incidents other agencies may need to work in close harmony with the fire service within the danger area. The Officer-in-Charge must ensure as far as is reasonably practicable the safety of all personnel within this area. Command and Control is described in Chapter 3 of this Handbook.

7.6 Personal Protective Equipment.

It is not reasonably practicable to control or eliminate all hazards that a fire-fighter may face. Personal protective equipment must be worn to reduce the risks in a hazardous environment. The Regulations require that PPE must be suitable to the risks involved.

Breathing Apparatus is an essential part of any fire-fighter's equipment. It provides the fire-fighter with a life support mechanism in hazardous environments. However, competency in its use depends on regular training and use at incidents. The design of Breathing Apparatus has changed radically in recent times, and this has made the sets easier to wear, with such features as automatic demand valves and lightweight cylinders.
7.7 Hazardous Materials.

As chemical substances play a major role in the life of the modern community, hazardous materials incidents are on the increase all the time. In these situations, the Fire Service may be faced with a cocktail of chemicals with unknown aggressive properties. The Fire Service is expected to render this incident safe for the benefit of the community. A different approach and procedure is very necessary in this situation. Fire-fighters are trained to react with speed in tackling a fire. However, at a chemical incident, the situation is reversed and they should approach with caution and fully assess the consequences of the appropriate actions for dealing with the chemical.

7.8 The Environment

Not alone must the Fire Service deal with the immediate incident, but we must also be aware of, and limit where possible, damage to the environment.

Any hazardous materials incident can damage the environment and so can the way it is tackled. The instinctive approach is to pour water on a fire, which may not always be the best approach at a chemical incident in the long term. On the other hand, fires involving radiation such as that at Chernobyl require to be smothered and contained as quickly as possible, to prevent further radiation pollution and widespread damage to the global environment.

Similar lessons can be gained from the Sandoz incident in Basle, Switzerland where water runoff from a fire at a chemical store severely polluted the Rhine. From a fire fighting point of view, the fire was contained and extinguished. However, the failure to contain the water run off led to drastic consequences for the Rhine and its tributaries. The Fire Service has to be conscious of pollution to the environment, just as any other industry. Indeed, it may be prudent at times to let the incident burn out under control, rather than extinguish.
7.9 Welfare.

7.9.1 Introduction

The largest single resource within a fire brigade, either retained or whole-time, is its people.

Fire Service activity has been described as long periods of routine duty, punctuated by bouts of intense activity. It is important to recognise the effects of stress on the individual as it can have drastic effects on the well being of the crew.

People may react adversely to the trauma of major incidents and suffer post traumatic stress disorder. This can have dramatic effects on the person's future. Proper debriefing and counselling may be necessary after some incidents. There should be access for people with trauma problems to a confidential support system separate to the rank structure of the Fire Service. Research has indicated that the positive psychological impact of an incident on people is dependent on preparedness, levels of training, appropriate and adequate leadership, response, recovery and mitigation. A major impact of any intervention is its proximity, immediacy and expectancy. The critical elements are communications, attitude and leadership. The junior officer is in a key position with regard to the welfare of the crew.

Employee Assistance Programs have been implemented by a number of local authorities to provide assistance to people within the local authority who have lost the balance between serving the satisfaction of healthy needs and avoiding the indulgence of unhealthy dependencies.

The earlier the intervention, the greater will be the chances of success. This intervention must take place in an atmosphere where something positive can be done. Intervention for its own sake will not achieve much. The Fire Service should have an active policy on substance abuse.

Physical fitness is an important attribute of the fire-fighter to allow her/him cope with the rigours and demands of the job, and moderate exercise and a healthy life-style are advocated.
7.9.2 Accident Procedures

Health and safety efforts in the fire brigade are concerned with the prevention of accidents. However, when accidents do occur it is necessary that a thorough investigation is carried out. The junior officer will often be the first to know that an accident has occurred. The procedures for reporting accidents/near misses to the Health and Safety Authority are set down in the Health and Safety regulations. Each brigade will have its own procedures for accident investigation and these must be adhered to. Appendix 7.3 gives details on accident/nearmiss reporting. Every accident/near miss, no matter how minor, should be investigated because studies have found there is a clear relationship between the number of minor accidents/near misses and the number of fatal accidents.

The two primary objectives of accident investigation are accident reduction and accident prevention.

7.9.2.1 Accident Reduction

Accident reduction may be achieved by obtaining sufficient data to facilitate the systematic reduction in the type and severity of accidents in the workplace and implementing the safety mix by providing information of sufficient quality to balance the mix to best effect.

7.9.2.2 Accident Prevention

This relates to the application of safety principles in new design and technology. Both strategies require the co-operation of everyone in the organisation to succeed and must not be left to one person to solve alone. Only in this way can effective safety strategies be employed.

Furthermore, it is important that the safety representative is involved in all accident investigations and that he or she is fully aware of the aims and objectives of the data collection process. Such investigations may assist in the formulation of rules and
safe procedures, but should not be seen as a means to an end. Obvious breaches of established procedures, however, must be dealt with in the interests of everyone’s safety.

7.10 Conclusion

Fire Service activity can involve some degree of hazard. Whilst some physical safeguards, such as protective clothing and breathing apparatus, may be used, a fire-fighter’s safety will depend on a safe system of work to which her/his own skill and experience, the skill and experience of officers and colleagues and a high degree of discipline all contribute.

Safety procedures are intended to protect the individual, and to sustain teamwork during hazardous operations.

Officers have a management responsibility for the safety of firefighters.

The Health and Safety of the crew is a major responsibility of the junior officer. Legislation sets out specific requirements in regard to health and safety. However, safety has always been inherent in fire brigade activities, and must remain so. No matter what technological developments take place, the fire officer is the key to effective and safe operations.
Appendix 7.1  The Safety Culture

Safety Culture

The promotion of a positive health and safety culture within the organisation should be based on the following:

**Control:** Securing the commitment of all employees to clear health and safety objective. All supervisors should take full responsibility for controlling all those factors which could lead to ill health, injury or loss. Adequate supervision is necessary to complement the provision of information, instruction and training in ensuring the successful implementation and development of the health and safety policy.

**Co-operation:** Participation, commitment and involvement in health and safety activities at all levels is essential to achieve effective risk control. Participation will encourage the ownership of safety at all levels.

**Communication:** Effective communication is essential at all levels in the organisation. This involves information coming into, flowing within and leaving the organisation. The safety statement should form an integral part of all communication on safety within the brigade. Effective communication should be secured by means of visible behaviour, written material and face-to-face discussion. Section 13 entitles all workers in all work places to nominate safety representatives who exercise extensive rights under the 1989 Act. This is a statutory position.

**Competence:** All employees should be competent to ensure that they make a maximum contribution to health and safety. Training and experience have major roles to play in ensuring competence. Training needs should be identified, based on comprehensive job analyses and be appropriate to each rank.

**Standards:** Standards and targets should be set within the brigade which should:

- Be realistic, achievable and measurable.
- Be performance-related, and should set out clearly the contribution required from people in order to achieve an environment free from accidents, ill health and loss.
- Assist in identifying the competence which individuals require to fulfil their responsibilities and form the basis for measuring individual group and organisational performance.

Generally, performance standards should identify who is responsible, how and when the work is to be completed, and the expected result.

Planning: A planned and systematic approach should be adopted to the implementation of the safety programme. The aim should be to minimise the risks created by work activities. Risk assessment methods should be used to determine priorities and set objectives for hazard elimination and risk reduction. This should identify specific actions needed to promote a positive health and safety culture and to eliminate and control risks.

Wherever possible, risks should be eliminated by the careful selection and design of facilities, equipment and processes, or minimised by the use of physical control measures. Where this is not possible, safe systems and personal protective equipment should be used to control risks.

Audit & Review Measures

Performance standards and targets should be regularly reviewed by means of both active and reactive monitoring. Audit and review measures should complement monitoring activities. The audit should identify the degree of compliance with health and safety performance standards and the absence and inadequacy of existing standards. The audit should have stated clear objectives within a definite time scale. Details of injury, illness and accident data within the brigade should be the basis of the audit procedures.
Appendix 7.2  Hazard and Risk

To avoid confusion, it is worth defining "Hazard" and "Risk". The following definitions have been given:

A HAZARD is a situation with a potential for human injury, damage to property or damage to the environment or some combination of these.

For example:

Hydrogen fluoride is a hazard because of its chemical nature.
A machine can be a hazard because of dangerous parts.
A falling tool from a scaffold is a hazard because of its kinetic energy.
Chemical hazards are solvents, acids etc.
Biological hazards are tuberculosis, AIDS, etc.
Psychosocial hazards which come into the general category of ergonomics/human factors are long hours, intense period of mental activity etc.
Health hazards are very widespread, but do not generally receive the same attention as hazards to safety, because very often the health hazard may only show ill effects many years after exposure.

Hazard Identification

All hazards associated with the workplace should be identified in a systematic manner.
The identification of workplace hazards is critical to the success of a safety programme. The workplace has to be analysed properly to ensure that hazards are properly identified.

Hazards may be identified by means of

Experience
Check Lists
Safety Audits
Accident Statistics.
Particular attention should be paid to identifying:

Long term chemical hazards
The potential for noise induced hearing loss
Potential diseases of the respiratory system
Situations leading to chronic back injuries
Situations which might lead to Repetitive Strain Injury  

Risk
The risk from something is generally taken to be the likelihood that it will cause harm and the consequences of that harm.

\[ \text{RISK} = \text{PROBABILITY} \times \text{CONSEQUENCE} \]

RISK ASSESSMENT

Risk Assessment involves the use of a systematic approach that takes account of the severity of the potential consequence of a particular hazard and its frequency. Also taken into account in the evaluation should be the probability of its occurrence. Having been identified, hazards should be evaluated and ranked in order of importance. The results of such an exercise will facilitate the establishment of a list of priorities for action to reduce the risk and form the basis for ongoing control.

There are a number of methods that may be used dependant on the type and nature of activity. There are certain circumstances where a proper Risk Assessment Analysis will have to be carried out - Fault Tree Analysis, Failure Modes and Effects Analysis.

However, for most other routine risks, the analysis of risk must involve determining:

Who is exposed?
To what?
For how long?
What is the probability of injury?
What are the consequences?
Having carried out an initial risk assessment, the next step is to implement appropriate risk reduction measures, allocating resources according to the levels of risk indicated. After such measures have been implemented, the risks should be re-assessed to determine priorities for further risk reduction. It is suggested, however, that the initial risk assessment remains the most significant as this reflects the underlying risk if control measures are not maintained.

Control Measures

The Safety Statement should particularly address the measures to control those hazards with serious consequences (whatever the frequency) as well as all hazards associated with high or medium risks. It must be stressed, however, that the purpose of a risk assessment is to prioritise resources and that no risk can be ignored, even if it is categorised as low.

Once the risk assessment has been undertaken, and the risks identified and prioritised, then adequate controls must be put in place. These range ideally from elimination to supervision, i.e. safe place to safe person.

- Elimination
- Substitution
- Dilution
- Enclosure
- Local Exhaust Ventilation
- General Ventilation
- Reduction in number of employees exposed
- Reduction in period of exposure
- Storage and house keeping
- Cleaning
- Welfare facilities
- Guarding of plant
- Preventative maintenance
- Auditing
- Safe Work Procedures
- Training
- Personal Protective Equipment
- Supervision.
Appendix 7.3  Accident/Near Miss Reporting Procedures

These accident/dangerous occurrence reporting requirements apply to all places of work and the forms are self-explanatory. Reports must be kept for a period of 10 years.

There are lessons to be learned from each accident/near miss, and the investigation should take the approach of what can be done to eliminate the cause and prevent a recurrence. It is advisable that accidents should be investigated within 24 hours if possible. Because of poor information gathering, a large number of safety management decisions are based upon opinion. In order to get the most accurate information, there are six basic categories of question that should be asked after all accidents.

Who?

Who was involved in the accident?
Who was the line manager responsible for safety?
Who reported the accident?
Who was called to respond to the accident?
Who was notified?
Who should have been notified?
Who was responsible?

When?

When did the accident occur?
When were people aware that an accident could occur?
When did help arrive at the scene of the accident?

Why?

Why did the accident happen?
Why were safety practices not applied?
Why did safety procedures fail to work?

What?

What actually happened?
What were the losses incurred?
What injuries were sustained?
What could have been done to avoid the occurrence?

**Where?**

Where did the accident occur?

**Where was the safety officer or line manager at the time of the accident?**

How did the event occur? Rapidly, slowly, without warning?
How could safety procedures and practices have been improved?
How can the organisation learn from the accident occurrence?

**ONCE THE CAUSES OF AN ACCIDENT ARE KNOWN IT CAN NO LONGER BE CALLED AN ACCIDENT!**

**Near Miss**

A near miss is any situation in which an ongoing sequence of events was prevented from developing further, preventing the occurrence of potentially serious (safety related) consequences.

Crane driver drops a load (dangerous occurrence)
It hits a person standing below (an accident)
No one is standing underneath at the time (near miss: chance factors)
A co-worker pushes a person out of the way (near miss: human recovery)
The area under the crane is restricted (near miss: management control)
The crane has an automatic stop device (near miss: technical safeguard)
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Section 8. Miscellaneous Issues

8.1 Report Writing

8.1.1 Introduction

In addition to routine recording of checks and tests on equipment, calls, etc., officers are required to provide reports on incidents attended. In addition, officers may also be asked to provide reports on accidents, equipment defects, training, security, safety, progress with items of work, disciplinary problems, annual reports, etc.

8.1.2 Reports

Reports should be written clearly, setting out the full facts as they appear at the time, and avoiding exaggeration. Full details should be given, including dates and times, as well as items which may seem unimportant, but may be of significant interest to others. It is usually a good idea to make a rough copy first and make corrections or alterations before writing the final report.

In the case of accidents, the names and addresses of one or more witnesses should be obtained. Do not try to persuade a witness of your view of the situation.

Where a matter reported on becomes later on a matter of dispute, perhaps in court, any notes, made at the time and later used as the basis of a report, can be of significant value in supporting the report. Such notes, no matter how basic, should be retained. If they need correction, make the correction, and mark the notes with initials and date.

Officers should develop a habit of noting the significant points of incidents in case questions arise afterwards. For example, if deliberate fire setting is suspected, were there signs of forced entry or use of flammable liquids? These observations may also be useful in debriefing or reviewing the work and performance of crews. (For example, if an officer consistently notices that a crew is slow in getting water on to fires, this may indicate a training need.)

The following points are generally worth bearing in mind when writing reports:
use the twenty four hour clock system,
do not overstate your case, or exaggerate,
keep to facts known to you; if including something told to you by someone else, make this clear,
do not withhold facts,
assemble the relevant information before writing the report,
keep the report brief and to the point,
write clearly, or type,
sign your report and include the date and time of the report,
keep a copy of your report; this saves trouble if the original is mislaid.

8.2 Court Appearances

8.2.1 Introduction

A Fire Service officer may be called to appear as a witness in court in connection with various types of proceedings, such as prosecutions for arson, hearings in respect of claims for accident damages, etc. Officers may also occasionally be called to appear as witness at an inquest held by a coroner to investigate the circumstances surrounding a death.

For example, in the case of a road traffic accident to which a fire brigade responded, the officer could be in a position to give information on the location and condition of vehicles, drivers and passengers, etc. when the brigade arrived at the accident scene. This type of information may be of use to the court where disputes arise about responsibility or liability for accidents.

This section gives information about types of evidence, the oath or affirmation under which evidence is given to the court, the examination of evidence in court, preparation for a court appearance, and appropriate behaviour when giving evidence in court.

8.2.2 Evidence

Evidence in its widest sense means anything which is legally received by the court to prove or disprove an alleged fact. This can include testimony of witnesses, documents, records and objects.
The principal categories of evidence are:

- **Testimony** - the oral statement of a witness made on oath in open court and offered as evidence of the truth.

- **Direct testimony**, or direct evidence, is testimony relating to facts of which the witness has or claims to have personal or first hand knowledge.

- **Hearsay** - a statement made by any person, other than a witness, which is offered as evidence.

- **Documentary evidence** - documents produced for inspection by the court. Documents can include maps, plans, graphs, drawings, photographs, discs, tapes, film and negatives.

- **Real evidence** - usually, some material object produced for inspection.

- **Circumstantial evidence** - There may be a combination of circumstances, no one of which would raise an overall conclusion, but taken together may create a conclusion.

In most cases, where a fire officer is called upon to give oral evidence in court, the evidence must be on oath. Where a person states that s/he has no religious belief or that an oath is contrary to her/his religious belief, an affirmation may be made instead of an oath. The form of the oath and affirmation are given at Appendix 8.1. Witnesses called merely to produce a document need not be sworn.

As a general rule, a witness cannot give his or her opinion in evidence. In matters which require special study or experience in order that an opinion may be formed (such as in matters of science or art), the opinion of an expert witness may be sought. It is for the Judge to decide whether the skill of any proposed witness is sufficient to entitle him or her to be considered an expert. On matters in which it is almost impossible for any witness to swear positively, a non-expert witness can
give evidence of her/his opinion (e.g. questions regarding identification, condition, comparison, or resemblance of persons or things); a witness may state his or her belief or opinion, even though s/he cannot swear positively.

Usually, evidence is given from memory, but, if a witness is not clear on any particular point, s/he may, for the purpose of refreshing his or her memory, refer to the following:

- Notes made by himself or herself at the time of or so soon after the events in question that the Judge considers it was fresh in his or her memory.

- Notes made by another person and read by the witness while his or her recollection of the facts recorded was recent and fresh, if, when s/he read the writing, s/he knew it to be correct.

Notes from which a witness refreshes his or her memory must be produced on request by the court and s/he may be questioned concerning them.

8.2.3 Functions of Judge and Jury

In criminal as well as civil cases, it is the prerogative of the Judge to decide all questions of law, and this includes primarily the type of evidence that may be admitted or rejected, as well as the competency of witnesses to give such evidence as is deemed admissible. The general rule is that all persons who are capable of understanding the nature of the oath and are capable of giving rational testimony are competent witnesses.

The function of a jury, where present, is to decide questions of facts, not the least of which consists of drawing inferences from circumstantial evidence. Even where facts are proved directly by eye-witnesses, there is still no obligation on the Jury to accept such evidence as conclusive. The Jury is entitled to consider the credibility of the witness from general demeanour in the witness box, or to consider that the reliability of evidence may be impaired by lack of opportunity for accurate
knowledge (such as in the case of an account of events observed from a
distance in poor visibility), inability to grasp essential points and other
circumstances which may tend to set up a doubt in the minds of the
Jury.

8.2.4 Examination of Witnesses

When a witness has been sworn, or made the necessary affirmation, if
required, s/he is examined by the legal representative of the party
calling the witness as to his or her knowledge of the facts. The
representative of the opposite party will then be entitled to cross-
examine the witness with a view to testing credibility or veracity or
knowledge of facts at issue. Lastly, s/he may be re-examined by the
party calling him or her on matters referred to in the cross-examination.

The Judge may put all such questions to a witness as the interests of
justice require. S/He may ask questions of witnesses when it is
necessary to clear up any point that has been overlooked or left obscure.
For this purpose s/he may recall a witness at any stage for further
examination or cross-examination.

8.2.5 Court Layout

The Judge's bench faces the courtroom. The Court Clerk or Court
Registrar (in circuit court or higher courts) sits in front of the Judge and
faces the courtroom. In front of the clerk or registrar are seated the legal
representatives (solicitors, barristers, senior or junior counsel,
depending on the level of the court) of the clients. The rest of the
courtroom is devoted to space for the public, reporters, and persons
involved in the cases being heard.

A witness box, sometimes only a table and chair, will be located near the
Judge's bench.

8.2.6 Preparing for a Court Appearance

Normally, it will be known for a reasonable period in advance that a
case will be coming to court, and decisions will be made as early as
possible about the evidence that will be required and the witnesses who
will be required to present that evidence. Witnesses should make themselves completely familiar with the evidence they will be required to give. They should also have some familiarity with the case as a whole, if possible. Normally, these aspects can be covered at interview between witnesses and the legal representatives of the side calling them.

Where the case at issue concerns a site, location, or structure, it can be useful if the witness arranges to see these, rather than relying on maps or plans.

Witnesses should think about the questions that may be put to them, both by the representatives of the party calling them and of the opposing side. Consideration should be given to the answers to these questions.

Where witnesses intend to use notes as an aid to memory in giving evidence, they should familiarise themselves with the material in advance of the court appearance.

8.2.7 In Court

Officers required to attend as witnesses should attend on time and make their presence known to the party calling them. They should then wait to be called to give evidence. Witnesses should be tidy in their dress and appearance.

In the witness box:

- Repeat the words of the oath or affirmation after the court clerk.
- Sit down if a seat is provided; if not, stand erect and smartly.
- Give evidence calmly by simply stating the facts seen or heard by you and answering questions put to you.
- Do not let yourself be hurried in answering questions.
- When under examination, listen carefully to questions asked and answer them without undue delay. Confine the answer to the questions asked.
- Tell the court the facts within your knowledge, in their proper
sequence, in a clear and audible voice, using simple language.

- Always address the Judge or Jury, as the case may be, ensuring that the court hears what you have to say.
- If in doubt about any point, or if you do not know the answer to a question, say so.
- Under cross-examination, answer calmly and politely, even if subjected to offensive or aggressive questioning.
- If asked why another person did or did not take a particular course of action, indicate that you cannot speak for that person.
- If a question can be answered properly by a 'yes' or 'no', answer accordingly, but avoid anything in the nature of a smart or short answer.
- If using notes to refresh your memory, have them in your possession, appropriately marked for ready reference, if necessary.

8.2.8 Inquests

Where deaths occur which are referred to as sudden deaths, including not only sudden deaths but violent or unnatural deaths, they are reported to the local Coroner, appointed under the Coroner’s Act, 1962. It is for the Coroner to decide whether an inquest is necessary or whether a post-mortem examination should be made.

In some cases, the Coroner may decide that an inquest will be held with a jury of six to twelve persons. An inquest is intended to ascertain information in relation to the death, in particular who died, how the person died, when the person died, and where the person died. The intention of an inquest is not to censure any person, or to exonerate anyone.

Recommendations of a general character, designed to prevent further fatalities may be appended to the verdict at an inquest.

A Coroner may cause a summons to be served on any witness whose evidence may be of assistance at the inquest.

Evidence at an inquest is given under oath or affirmation. Witnesses
may be examined by the District Officer or by the Coroner, or both. In practice, previously prepared written statements are read and witnesses are invited to sign them by the Coroner.

The Coroner or the Jury considers the evidence and arrives at a verdict.

8.3 Fire Investigation

8.3.1 Introduction

Investigation of fires is carried out by the Garda Siochana, who are interested in fires whose circumstances suggest that a crime may have been committed.

Fire officers are also required to make reports on fires (see 7.1 above) that they have attended. Frequently, the investigation of the causes and of the development of fires in buildings can provide useful information. The information supplied by fire officers is used to produce statistics on the causes and locations of fires. This information can also be used as a basis for fire safety advice and for the design of buildings against fire, with a view to reducing injuries or deaths from fire. Thus, investigating and reporting on fires attended is a vital feedback provided by the fire brigade officer.

This section gives information to fire officers on the common causes of fire, and indicates considerations for the officer to note at fires which may be of assistance in preparation of his/her reports and to others whose tasks include investigating fires.

8.3.2 Common Causes of Fire

Figures based on information supplied by fire authorities on the causes of fires attended by fire brigades are provided in the Annual Fire Statistics Bulletins, prepared by the Department of the Environment, Heritage and Local Government.

For example, in the 2001 returns a substantial portion of the fires (approximately 32%) were returned as cause unknown. However, the
most common among the remainder are chimney fires (21%), malicious fires (28%), fires resulting from rubbish burning (4%), fires resulting from use of cooking or heating appliances (3%), and fires resulting from electrical equipment or wiring (5%). These figures are unlikely to surprise fire officers who respond to calls, week in and week out, throughout the year.

In some situations, the cause will be very apparent to the officer-in-charge (OiC) at a fire. Persons on the scene may be able to give an account of how the fire started, or the source of ignition may be still visible after the fire has been extinguished. (For example, the remains of a deep fat fryer may be found in a kitchen along with signs that the burning was confined to the area near the fryer.)

The OiC should not automatically accept the account s/he may be given by persons at the scene, however, but should try to verify for himself or herself, noting the signs that are apparent. It may be that someone who has set a fire maliciously could give misleading information to a fire officer to deflect suspicion, or, in the case of a fire caused accidentally, it may be that the person responsible wishes to avoid blame.

Where an officer suspects a fire may have been caused deliberately or maliciously, the Garda Síochána should be informed as soon as possible.

Officers should not give hasty or unfounded opinions about possible causes of fire. Any information given about causes of fire should be based upon facts observed by the officer or crew.

8.3.3 Points to Observe at Fires

There are a number of signs which may be observed by fire-fighters and officers, and could go towards providing an indication of fire cause. Such signs may be observed at all stages of the Fire Service’s involvement with the incident, from the initial call to the close of the incident and even later.
Does the initial information given when the fire is reported contain unusual information? If a fire is reported by someone who has set the fire deliberately, s/he may know more about the circumstances than otherwise and may inadvertently give more information than would be available to someone who discovers a fire. Persons who report fires on more than one occasion may be involved in deliberate fire setting.

On route to the fireground, or nearby, are there signs of disorderly crowds, or attempts to prevent a prompt attendance by the Fire Service? These may indicate the possibility that fires have been set deliberately as part of some type of disturbance.

On arrival at the fireground, a number of features may be noted.

- The colour of smoke coming from a fire may provide an indication of the material burning, and may suggest use of accelerants (flammable liquids, etc.) to speed the fire's development. (For example, the smoke produced from the burning of hay or vegetable material is likely to be white in colour; wood, paper and cloth generally produce grey-to-brown smoke; coal or plastic material, black; cooking oil, brown; and flammable liquids such as petrol, turpentine, paraffin oil, black or black-to-brown.)
- Similarly, the colour of flames or the presence of unusual smells, either generally or in smoke, may provide information.
- Explosions could also raise questions about the materials involved in the fire, possibly indicating the presence of flammable liquids or gases.
- The part of the building initially involved in the fire should be noted. The presence of a number of fires in a building may indicate deliberate fire setting, as may the presence of fires in neighbouring buildings.
- The speed of growth or spread of the fire may again indicate use of accelerants.
- Are there signs that entry points to the building have been forced to gain entry (for example, if glass is broken in windows or doors, is the glass on the inside or the outside?), or that they have
been blocked to impede entry of firefighters?

- Are there signs that windows have been opened or broken to provide an air supply to a fire?
- Are there persons fleeing the scene, or showing unusual interest in the fire? Are there persons among spectators who have been noticed at fires previously?

During operations, there are signs which may be noted.

- Are there factors which impede operations, such as blocked or damaged hydrants, disabled sprinkler systems or alarms, or interference from spectators?
- Are vents opened, or unusual openings created, to enhance the air supply to the fire?
- Are doors held open to facilitate fire spread, or holes broken in partitions or walls?
- Are there unusually large or small amounts of stock?

After a fire has been dealt with, the officer may notice further signs which may provide information.

- The point of origin of burning should be sought. Begin at the area of heaviest damage, though this may not always be the location of origin. In this area, look for evidence of possible fire causes, especially those listed above. Possible ignition sources may often be found at low level in the area of origin. A source of fuel is also necessary for fire development; remember that items such as furniture may have been moved during operations.
- In the case of deliberate fires, the remains of incendiary devices may be found in the building.
- Persons at the scene may show unusual interest, possibly staying at the scene longer than might be expected, or asking questions of officers or firefighters.

8.3.4 Further Reading

Appendix 8.1

Oath and Affirmation

Form of the Oath

'I swear by Almighty God that the evidence I shall give to the court in this case shall be the truth, the whole truth, and nothing but the truth'.

Form of Affirmation

'I A.B. do solemnly, sincerely and truly declare and affirm that the evidence I shall give to the court in this case, shall be the truth, the whole truth, and nothing but the truth'.