

IFE Level 3 Diploma in Fire Science and Fire Safety (VRQ)

Unit 3: Fire Service Operations and Incident Command – International

Unit Reference Number: J/505/6007

Introduction

This unit focuses on the activities required to resolve fire and rescue incidents. It covers incident command as well as fire and rescue operations and techniques.

Candidates managing fire and rescue operations will need to have a wide range of technical knowledge and understanding to enable them to evaluate risks and manage incidents of different types in different contexts and environments. They will need to be able to apply their technical understanding to evaluate situations, identify an appropriate course of action, prioritise actions and manage risks.

Learning Outcomes

Candidates who achieve this unit should be able to:

- Evaluate fire and rescue incidents and identify appropriate action to resolve the incident safely and with regard to environmental issues
- Understand how to supervise activities at incidents including the management of sectors
- Assess the scale of an evolving incident and know when and how to escalate/handover to appropriate colleagues
- Explain the operation of firefighting equipment, knowing when to use equipment and how to manage risks associated with the use of different equipment
- Evaluate risk and identify appropriate action in order to preserve the safety of firefighters and members of the public

Unit Status

This unit is an Optional Unit for candidates undertaking the Level 3 Diploma in Fire Science and Fire Safety.

*Note: candidates are **not** permitted to use this unit in combination with Unit 6: Fire Service Operations and Incident Command - UK.*

Content

1. Incident Command and Management

Assessment Objective	Knowledge, Understanding and Skills
1.1 Understand the key principles of Incident Command	<ul style="list-style-type: none"> • Functional areas of Incident Command Systems • Levels of management applied at operational incidents • Role of other agencies and the relationship with the incident command structure
1.2 Understand the roles and responsibilities of personnel within the incident command structure	<ul style="list-style-type: none"> • Role and responsibilities of the Incident Commander at operational level • Role and responsibilities of the Sector Commander at incidents • Role and responsibilities of Command Support • Progression at an incident from first pump attending to the arrival of a dedicated vehicle • Responsibility for determining the cause of an incident • Range and the types of evidence available at an operational incident
1.3 Understand the requirements for the successful management of risk at operational incidents	<ul style="list-style-type: none"> • Definition of hazard, risk and control measure • Management of risk at operational incidents • Dynamic Risk Assessment flowchart • Tactical mode options available at incidents • Hierarchy of control measures in managing risks • Importance of evidence preservation
1.4 Understand the need for effective lines and methods of communication at incidents	<ul style="list-style-type: none"> • Lines of communication available at incidents in relation to an Incident Commander's span of control • Impact of poor or inappropriate communication • Methods of briefing of crews at operational incidents • Model for sectorisation at operational incidents
1.5 Describe in detail principles for general control, tactics and strategy in resolving emergency incidents and explain how these principles should be applied to different contexts	<ul style="list-style-type: none"> • Need for evacuation at fires and other emergencies • Strategy and tactics involved in rescue work • Objectives of ventilation at fires • Aims and principles of salvage/damage control • Procedures for ensuring the safety of both personnel and public • How to identify signs and symptoms of stress in relation to trauma and/or work based activity • Actions to reduce the exposure to and impact on operational personnel and casualties
1.6 Explain the purpose of pre-planning for any specified emergency and assess the issues for inclusion in different contexts	<p>Incidents to include:</p> <ul style="list-style-type: none"> • Fires • Rescues involving trapped or stranded large animals • Incidents involving civil disturbances and acts of terrorism • Incidents involving hazardous materials e.g. at refineries or chemical plants

2. Operational Techniques

Assessment Objective	Knowledge, Understanding and Skills
2.1 Understand the process and principles of fire development and extinguishment and assess how these principles apply in different contexts	<ul style="list-style-type: none"> • Methods of identifying different types of burning materials • Ways in which fire can spread within buildings and between buildings • Principles, application and benefits of ventilation, including Positive Pressure Ventilation
2.2 Evaluate situations and determine the appropriate methods of attack and appropriate practical procedures taking into account hazards to the environment and persons present	<ul style="list-style-type: none"> • Responding to emergency including: <ul style="list-style-type: none"> ○ Turning out ○ Proceeding to incident ○ Arriving/getting to work • Rescue contexts including: <ul style="list-style-type: none"> ○ Ice/unstable ground ○ Lifts/escalators ○ Sewers ○ Silos ○ Trench/pits ○ Collapsed structures ○ Height ○ Water, including flooding ○ Large animal rescue ○ Machinery (trapped persons) ○ Tunnels ○ Ships • Fighting Fires in contexts including: <ul style="list-style-type: none"> ○ Buildings ○ High rise ○ Chimneys ○ Rural areas ○ Farms ○ Using PPV ○ In refuse ○ Public entertainment venues ○ Places of lawful detention ○ Petrochemical and pipelines ○ Forests, hearths, bush and crops (wildland fires) ○ Historic buildings and premises • Fires in transport contexts: <ul style="list-style-type: none"> ○ Road ○ Rail ○ Air ○ Marine ○ Helicopters • Environmental or climatic responses: <ul style="list-style-type: none"> ○ Flooding ○ Severe weather

	<ul style="list-style-type: none"> • Generic hazards including: <ul style="list-style-type: none"> ○ Electricity ○ Common industrial gases, including acetylene ○ Chemical ○ Biological ○ Confined spaces ○ Civil or local disturbances ○ Explosives ○ Flashover/backdraught ○ Asbestos ○ Industrial processes ○ Radiological hazards
2.3 Evaluate the hazards and implications for firefighting in a built environment and identify appropriate strategies in different situations	<ul style="list-style-type: none"> • Hazards presented by different building materials • Hazards presented by elements of building structure • Hazards presented by building facilities including heating, ventilation, air conditioning systems, stairwell pressurisations systems, electricity, gas, water, lifts, escalators

3. Mobilisation and Communication

Assessment Objective	Knowledge, Understanding and Skills
3.1 Detail methods of summoning personnel and transmitting call information and instructions	<ul style="list-style-type: none"> • Communication with: <ul style="list-style-type: none"> ○ Fire stations ○ Individuals at locations other than fire stations ○ Mobile fire appliances
3.2 Describe equipment used and its operating principles	<ul style="list-style-type: none"> • Equipment used in control rooms including the use of computer aided mobilising systems • Radio systems and their use: <ul style="list-style-type: none"> ○ Radio systems using VHF, UHF and digital workings ○ Use of radio systems both on and off the incident ground

4. Equipment and its Operational Use

Assessment Objective	Knowledge, Understanding and Skills
4.1 Understand and explain how to deploy appropriate firefighting equipment and other resources	<ul style="list-style-type: none"> • Select and use appropriate equipment and resources to meet the needs of the incident
4.2 Understand the procedures and considerations when working at height and how these apply in different situations	<ul style="list-style-type: none"> • Line rescue capability, including operational procedures • Safe systems of work
4.3 Understand the performance requirements and the construction of the various types of foam and foam making equipment and how these apply in	<ul style="list-style-type: none"> • Properties of the various foams and foam concentrates • Classify problems by expansion and by constituents (low, medium, high) • Conditions under which foam concentrates should be stored

different situations	<ul style="list-style-type: none"> • Types of equipment required to produce foam • Care and maintenance of foam making equipment • Application rates of foam and factors to be taken into account when using foam to extinguish a fire • 'Pressurised foam supply'
4.4 Describe in detail the performance requirements and the construction of the various types of Breathing Apparatus (BA) and associated equipment	<ul style="list-style-type: none"> • Principal component parts and the passage of air from the cylinder at high pressure to the wearer in a specific type of compressed air apparatus • Breathing Apparatus communications equipment • Safety procedure used to control the use of Breathing Apparatus (BA) by up to 12 wearers • Methods of testing a specific type of apparatus • Hand operated resuscitation apparatus and typical automatic resuscitator
4.5 Understand the performance requirements and the construction of the various types of chemical protective clothing and how these apply in different situations	<ul style="list-style-type: none"> • Principles of clothing design to give total environmental protection by being 'gas tight', or limited protection against splashing by harmful chemicals • Testing and maintenance procedures to be adopted for such items
4.6 Describe in detail the type of equipment used in relation to radiation incidents	<p>Types of equipment to include:</p> <ul style="list-style-type: none"> • Radiation measuring equipment • Personal protective equipment • Decontamination equipment
4.7 Evaluate the provision and operational use of water supplies for firefighting purposes and determine strategies to resolve issues	<ul style="list-style-type: none"> • Provision of supplies of water for firefighting purposes • Operational use of water from its supply for firefighting purposes
4.8 Understand and apply strategies for the use of Heavy Rescue Equipment including search and rescue in built up areas	<ul style="list-style-type: none"> • Construction and operating principles of compressed air power tools, electric power tools and flame cutting equipment • Items in a typical hydraulic rescue kit, operating instructions and general maintenance applicable to the equipment • Operation of hauling and lifting equipment, including blocks and tackle, and the associated anchoring methods

5. Post-Incident Actions

Assessment Objective	Knowledge, Understanding and Skills
5.1 Understand how to close down the operational phase of an incident	<ul style="list-style-type: none"> • Measures to hand over control of an incident to an appropriate person, agency or authority • Actions to identify and minimise any unresolved hazards and associated risks within operational constraints • How to gather and review all relevant information from internal and external sources for debriefing purposes

<p>5.2 Understand the principles of, and value of, debriefs and apply these principles to different incident contexts</p>	<ul style="list-style-type: none"> • How to contribute to a post-incident debrief appropriate to the type and scale of incident • How to gather and review all relevant information from internal and external sources • How to engage crew in debriefing and to review crew welfare and learning issues • How to implement remedial measures to improve future practice and performance
<p>5.3 Determine the requirements for preservation of evidence at a scene by applying basic fire investigation principles</p>	<ul style="list-style-type: none"> • How to identify and preserve potential evidence identified at the incident