

# Vessel Traffic Services Operations

National Occupational Standards

March 2004

Port Skills and Safety

**National Occupational Standards for Vessel Traffic Services Operations**  
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## STANDARDS FOR VESSEL TRAFFIC SERVICES OPERATIONS

### List of Unit and Element Titles

#### **1 Operate communications equipment**

- 1.1 Monitor the serviceability of equipment
- 1.2 Use radiotelephone equipment
- 1.3 Use telephone equipment
- 1.4 Use facsimile, telex and electronic mail equipment
- 1.5 Use approved phrases and procedures
- 1.6 Use visual signaling equipment
- 1.7 Use data services

#### **2 Maintain and update vessel traffic image**

- 2.1 Make full appraisal of all significant vessel traffic in the VTS area
- 2.2 Correctly identify all significant vessel traffic in the VTS area
- 2.3 Correctly identify all significant vessel traffic entering the VTS area
- 2.4 Promptly contact all significant unidentified vessel traffic entering the VTS area

#### **3 Monitor the present and forecast meteorological and hydrological conditions**

- 3.1 Determine the present and forecast meteorological and hydrological conditions
- 3.2 Receive, monitor and respond to meteorological and hydrological information

#### **4 Application of nautical knowledge**

- 4.1 Chartwork
- 4.2 Appreciation of collision regulations
- 4.3 Appreciation of marine aids to navigation
- 4.4 Appreciation of marine navigational aids
- 4.5 Appreciation of shipboard knowledge
- 4.6 Appreciation of port operations

#### **5 Communicate with stakeholders**

- 5.1 General communication skills
- 5.2 Effective communications
- 5.3 Log and record keeping

#### **6 Application of number and information technology**

- 6.1 Application of number
- 6.2 Application of information technology

**7 Personal attributes**

- 7.1 Working with others
- 7.2 Personal interaction and human relations
- 7.3 Responsibility
- 7.4 Respond to the needs of team members
- 7.5 Ensure workload is within individual capabilities
- 7.6 Improve own learning and performance
- 7.7 Problem solving

**8 Respond to emergency situations**

- 8.1 Comply with local, national and international regulations
- 8.2 Prioritise and respond to incidents
- 8.3 Use contingency plans
- 8.4 Co-ordinate with all support allied services
- 8.5 Maintain safe waterway throughout emergency situations
- 8.6 Respond to internal emergencies within the VTS centre

**9 Use radar and tracking systems safely**

- 9.1 Monitor the serviceability of the equipment
- 9.2 Use marine radar safely
- 9.3 Use automatic tracking system safely
- 9.4 Use VTS radar and tracking system safely

**10 Provide vessel traffic service**

- 10.1 Provide an information service
- 10.2 Provide navigational assistance service

## GLOSSARY OF TERMS

**Allied Services** are services actively involved in the safe and efficient passage of the vessel through the VTS area.

**ARPA** is an automatic radar plotting aid that allows manual and automatic target acquisition and tracking.

**Automatic Identification System (AIS)** is a radio transponder beacon designed as a navigational aid to provide maritime information exchange. The implementation of this system is expected to substantially enhance safety at sea. VTS Centres have the capability of monitoring vessel traffic fitted with AIS, leading to improved surveillance and monitoring of vessel traffic. AIS base-stations are required to be compatible with the IMO approved AIS. AIS base-stations will also need to be compatible with the IMO approved ship borne AIS equipment and the requirements of the EU Directive 2002/59/EC on Vessel Traffic Monitoring.

**CD-ROM** – Compact disk-read only memory.

**Closed Circuit Television (CCTV)** involves the transmission of television images directly from a camera to a nearby television display by means of a cable.

**COLREGS** – International Regulations for Preventing Collisions at Sea, 1972 as amended. They enhance safe navigation by prescribing the conduct of vessels underway, specify the display of internationally-understood lights and sound signals and set out collision avoidance actions in close quarters situations.

**Competence** is the ability to perform defined tasks or duties effectively.

**Competent Authority** is an authority made responsible, in whole or part, by the Government for the safety, including environmental safety, and efficiency of vessel traffic and the protection of the environment. The Maritime and Coastguard Agency (MCA) is the Competent Authority for VTS within UK territorial waters. The Competent Authority for VTS may also be a VTS Authority in its own right for waters outside the limits of individual Harbour Authorities.

**Complex subjects and material** (as defined by the QCA) present a number of ideas, some of which may be abstract, very detailed or require candidates to deal with sensitive issues. A complex subject may require candidates to deal with relationships of ideas and lines of enquiry dependent on clear reasoning, where these relationships may not be immediately clear. As well as having a number of strands, the subject matter may be challenging to the candidate in terms of ideas it presents. Specialised vocabulary and complicated sentence structures may be used.

**Contributory Navigational Assistance Service** is the provision of factual navigational information to assist the on-board decision making process. The information is provided either in response to a specific request from a vessel or when the VTS Authority perceives that the information would be of use to the vessel. Any information must be results oriented.

**Data export** uses Information Communications Technology to transmit data. The data export capability should meet the requirements of the EU Directive 2002/59/EC on Vessel Traffic Monitoring.

**Data management system** is a fully integrated system that effectively manages all of the information necessary to provide the declared type and category of service.

**Data recording devices** are systems capable of recording all operational data concerned with the compilation of the traffic image. This will typically include radar / AIS data and all communications and will permit the replay of data in support of incident analysis.

**Distance Separation** is a Traffic Organisation and Management technique in which vessels allocated a minimum distance between each other in order to transit the whole or certain areas and restricted passages. Allocated, instituted and monitored by the VTS. Overtaking restrictions and/or minimum passing distances may apply.

**Domain of safety** is a dynamic three-dimensional area around a vessel that provides a zone of safety.

**Dynamic Traffic Image** is a real-time display of the traffic image.

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**EBL** is an electronic bearing line on the display of a radar/ARPA set that enables the bearing of an object to be obtained.

**ECDIS** is an electronic chart display and information system, type approved displaying approved vectorised or raster electronic charts.

**Electronic mail (E-mail)** is a method of transmitting data or text files from one computer to another over an internal computer network (intranet) or the Internet (a world wide interconnection of computers and computer networks). E-mail enables computer users to send messages and data through a local area network (LAN) or beyond through a nation-wide or global communication network.

**Electronic Navigation Chart (ENC)** is a vector chart that conforms to the International Hydrographic Organisation (IHO) specifications. It is compiled from a database of individual items ('objects') of digitised chart data, which can be displayed as a seamless chart. For further information refer to the MCA Marine Guidance Note MGN 133 (M+F).

**Element of Competence** describes the work activity (actions, behaviours or outcomes) in which the candidate's competence is being judged.

**Equipment performance monitoring** is the ability to monitor the performance of all equipment used in provision of the service / category of service declared, including a planned maintenance system.

**Extended documents** (as defined by the QCA) include text books, and reports, articles and essays of more than three pages or of approximately 1,000 words in length. However, in making a judgement of whether a document is sufficiently 'extended', the over-riding consideration must be its fitness for purpose. The scope of the content, the amount of factual information or number of different thoughts and ideas included (and the way in which they are expressed and developed) would also influence this decision. The tutor or supervisor responsible for the original task would be best placed to make such a judgement. They may deal with straightforward or complex subjects and include images such as diagrams, pictures and charts. Candidates are asked to read and write extended documents at Key Skills Level 2 and above to show, for example, that they can identify lines of reasoning in fairly lengthy material and structure their writing to help others follow their sequence of ideas.

**Extended period of time** (as defined by the QCA) is a period of time extending about three months.

**Facsimile (or fax)** is a communications system for the electrical transmission and reception of text, photographs or drawings transmitted via a telephone line connected to shore-side telecommunications network or to a vessel via mobile telephone system or satellite communications systems.

**Geographic Information System (GIS)** is a computer system capable of assembling, storing, manipulating, and displaying geographically referenced information, i.e. data identified according to their locations. Practitioners also regard the total GIS as including operating personnel and the data that go into the system. The way maps and other data have been stored or filed as layers of information in a GIS makes it possible to perform complex analyses. GIS can be used for mapmaking, information retrieval, topological modelling, emergency response planning, simulating environmental effects, networks overlay, data output, etc. GIS technology can be used for scientific investigations, resource management, and development planning. For example, a GIS might allow emergency planners to easily calculate emergency response times in the event of a disaster.

**Geographical Division** is a passive traffic organisation and management technique through layout of the VTS area and separating traffic streams by adopting Traffic Separation Schemes, designated anchorages, or designated areas for cross traffic etc.

**GMDSS** means the global maritime distress and safety system. Under SOLAS conventions all ships and maritime nations must provide safety systems to enhance safety at sea.

**GPS** is a worldwide system of satellite positioning referencing the American "Navstar" system or the Russian "Glonass" system.

**Hydrological sensors** are sensors that monitor and provide real-time hydrological information about the water (i.e., depth, rate and direction of tidal stream, turbidity, etc) in a navigational channel.

**IALA** is the International Association of Marine Aids to Navigation and Lighthouse Authorities.

**IAMSAR** is the International Aeronautical and Maritime Search and Rescue system that all maritime nations under SOLAS conventions must agree to follow.

**IHO** is the International Hydrographic Office.

**Images** - (as defined/described by QCA) - IT and communication require the use of images in presenting information. Whatever form the image takes, its effectiveness will be determined by whether it is fit for purpose and has been used to aid understanding of the written or spoken text. At levels 1, 2 and 3 of communication, one of the two pieces of writing required should 'include at least one image'. Candidates may use one or more images in either of their written documents. In some cases, fitness for purpose and audience may constrain this choice. Communication requires candidates to use images in their talk or presentations, as well as in their written documents, and to interpret images used in texts they read. Examples of the forms these images might take are provided in Parts A and C (in this QCA publication) of the communication specification and in their guidance: models, plans, sketches, diagrams, pictures, graphs and charts. A table of text or numbers would not count as an image for IT or for communication. These suggestions are not exhaustive.

**Information Technology (IT)** comprises of new and evolving technologies includes software (computer operating systems, programs, etc) and hardware (equipment necessary to run the operating systems and software) for information systems.

**Information and Communications Technology (ICT)** comprises of new and evolving technologies includes software (computer operating systems, programs, etc) and hardware (equipment necessary to run the operating systems and software) for information and communication systems.

**Information Service** is a service to ensure that essential information becomes available in time for on-board navigational decision-making.

**Intermodal transport may be** described as the movement of goods in one and the same load unit or vehicle that uses several modes of transport without handling of goods themselves when changing modes. Intermodal transport involves physical movement of goods, from consignor to consignee, by utilising intermodal transport units, such as containers, semi-trailers, rail wagon, etc. Intermodal transport chains may be complex and involve different modes, i.e., truck (road), railways, ships and aircraft. Aircraft use different units (containers) for transportation hence it may not be common for pure intermodal transportation to use aircraft together with ship or rail modes.

**Key Purpose** defines the function of the entire occupational area in outcome terms.

**Key Role** describes, in broad terms, the principal components of work activities. The function of the Key Role is to provide a structure for the Standards.

**Log and record keeping (automatic or manual)** indicates a means of recording all activities within the area, which may be either electronic or manual. In more sophisticated systems this is likely to be incorporated in the data recording / data management system.

**Loran** is an acronym for "Long Range Navigation" and refers to terrestrial hyperbolic navigation system using time difference measurement for position estimation.

**Manual plotting facility** is any means for manually maintaining a traffic image i.e. magnetic board or paper chart.

**Marine Aid to Navigation** is a device or system external to vessels that is designed and operated to enhance the safe and efficient navigation of vessels and/or vessel traffic.

**Marine Navigational Aid** is an instrument, device, chart etc., carried on board and intended to assist the navigation of a vessel.

**Marine radar and tracking system** indicates stand alone marine radar with automatic tracking capability i.e. ARPA

**Marine radar** indicates stand-alone marine radar without automatic tracking.

**Meteorological sensors** are sensors that provide real-time meteorological information to stakeholders.

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**NAS** is an abbreviation used in this document for *Navigational Assistance Service* and refers to a service aimed at assisting on-board navigational decision-making and to monitor its effects.

**Navaid** is an abbreviation used in this document for *Marine Navigational Aid* and refers to an instrument, device, chart etc., carried on board and intended to assist the navigation of a vessel.

**Non-participating Traffic** comprises of vessels that are not providing reports to or communicating with a VTS Centre whilst in the VTS Centre's area of responsibility.

**Participating Traffic** comprises of vessels that are required, under applicable VTS rules or regulations, to provide reports to and communicate with a particular VTS Centre whilst in a geographic area specified in the rules or regulations; **OR** vessels not required to report or communicate but which provide reports to and communicate with a VTS Centre for all or part of their transit whilst in the area of responsibility of a VTS Centre.

**Participatory Navigational Assistance Service** involves the VTS Operator providing navigational advice to the bridge team and the VTS can become involved in the on-board decision making process. Through the exchange of information between vessel and VTS, an agreed course of action may emerge. Any recommendations from the VTS must be result orientated and must not include specific instructions on courses to steer and speed through the water. This service is provided on specific request or when perceived necessary by the VTS Authority, in the interests of safety.

**Performance Criteria** describe the critical results of performance in that work activity which enables competence to be indicated or "inferred".

**QCA** - The Qualifications and Curriculum Authority. Definitions of terms attributed to the QCA and used in this document are extracted from the QCA publication "The key skills qualifications specifications and guidance *communication, application of number and information technology*" (ISBN 1 8538 494 X) published in 2002.

**Range Statement** describes the range of circumstances and equipment across which a candidate must demonstrate competence.

**Raster Navigational Chart (RNC)** is a chart that conforms to the IHO specifications and is produced by digitally scanning a paper chart image. Since the displayed data is merely a digital photocopy of the original paper chart, the image has no intelligence and, other than visually, cannot be interrogated. For further information refer to the MCA Marine Guidance Note MGN 133 (M+F).

**Redundancy** is the presence of sufficient back-up equipment to ensure continuity of the service / category of service declared under realistic fault conditions.

**Safety Domain** is an area around a ship that represents the physical limitations of its capability to react and/or an area of water around a vessel that must be kept clear of other ships and hazards to navigation for reasons of safety.

**SAR** means search and rescue.

**Significant Vessel Traffic** comprises of vessels, including participating and non-participating traffic that are, or may, impact on another vessel's operation or enter its Safety Domain.

**SMCP** - Standard Marine Communication Phrases published by the International Maritime Organization (ISBN 92-801-5137-1). Section A1/6 of the document covers VTS standard phrases. This document has been compiled to:

- ✓ Assist in the greater safety of navigation and of the conduct of the ship,
- ✓ To standardise the language used in communication for navigation at sea, in port approaches, waterways and harbours, and on board vessels with multilingual crews, and
- ✓ To assist maritime training institutions in meeting the objectives mentioned above.

**SOLAS** refers to the International Convention for the Safety of Life at Sea 1974, as amended.

**Stakeholder** is any individual or organisation who may be affected by, or interested in, the acts, errors or omissions of an organisation.

**Standard Operating Procedure (SOP)** is a procedure authorised by a VTS Authority and issued for the guidance of VTS Operators. SOPs should be in the form of a written directive or contained within the Centre VTS Operations Manual.

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**Standards** describe the expectations of employment, (i.e. the specifications of performance), against which the actual performance of controllers will be assessed. Standards consist of an Element, its Performance Criteria and Range Statement.

**Straightforward subjects and materials** (as defined by the QCA) are those that candidates often meet in their work, studies or other activities. Content is put across in a direct way with main points being easily identified. Usually, sentence structures are simple and candidates will be familiar with the vocabulary.

**Substantial activity** (as defined by the QCA) is an activity that includes a number of related tasks, where the results of one task will affect the carrying out of the others. For example, in application of number a substantial activity will involve obtaining and interpreting information, using this information when carrying out calculations and explaining how the results of calculations meet the purpose of the activity.

**Synoptic chart** is a weather map that shows the weather for a particular area for a specific time. It is developed from a collection and collation of a considerable amount of data at numerous weather stations. These data are refined, usually as quickly as possible using computers, and are plotted using internationally accepted weather symbols. A synoptic chart shows selected meteorological characteristics for specific weather stations. The station model/symbol will show six elements: temperature, pressure, cloud cover, present weather, wind direction and wind speed.

**Telephone (landline or mobile)** shore-side telecommunications network with the capability to deal with all operational and emergency demands, including Allied Services.

**Telex** is an international dial-up low-speed data communications service.

**Time Separation** is a traffic organisation and management technique in which a vessel is given exclusive use of a certain area or a restricted passage for a given time. Time slots are allocated by VTS as part of a mutually agreed sailing plan.

**Traffic Clearance** is an authorisation by a VTS Authority, issued through a VTS Operator, for a vessel to proceed with an intended manoeuvre, at or between times specified in the Traffic Clearance.

**Traffic Image** is the surface picture of vessels and their movements in a VTS area.

**Traffic Organisation Service** is a service to prevent the development of dangerous maritime traffic situations and to provide for the safe and efficient movement of vessel traffic within the VTS area.

**Underpinning Knowledge** specifies the knowledge requirements necessary to support the candidate's performance within a particular element.

**Unit of Competence** describes the **Key Role** in outcome terms. Units of Competence contain several components:

- An overview titled "**Scope of this Unit**" that summarises the Elements and competence required for that unit.
- A list of "**Resources and Aids**" available to the VTS Operator to carry out the tasks.
- Statements of "**What you must do**". Note that the number of these statements will vary according to the identified requirements for each Unit.
- "**What you need to know**" are identified areas of specific underpinning knowledge. These relate directly to the statements of 'What you must do'

**Vessel Traffic Services (VTS)** is defined as a service implemented by a competent authority, designed to improve the safety and efficiency of vessel traffic and to protect the environment. The service should have the capability to interact with the traffic and respond to traffic situations developing in the VTS area.

**VHF (marine band)** is a Very High Frequency radio, capable of working in the marine band on the channels identified and in sufficient numbers to provide the service and channels declared for the area.

**VHF Direction Finding (VHF DF)** is a Very High Frequency radio direction finding equipment to assist in the confirmation of the source of VHF transmissions.

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**VRM** is a variable range marker found on a radar/ARPA that enables range (i.e., distance) measurement between objects on the operator visual display unit.

**VTS radar and tracking system** is a dedicated fully functional VTS radar and display system.

**VTS Authority** is the authority with the responsibility for the management, operation and co-ordination of the VTS, the interaction with participating vessels and the safe and effective provision of the service.

**VTS Sailing Plan** is a plan that is mutually agreed between a VTS Authority and the master of a vessel concerning the movement of the vessel in a VTS area.

**VTS Area** is the delineated, formally declared service area of the VTS. A VTS area may be subdivided in sub-areas or sectors.

**VTS Centre** is the centre from which the VTS is operated. Each sub-area of the VTS may have its own sub-centre.

**VTS Operator** is an appropriately qualified person performing one or more tasks contributing to the services of the VTS.

**VTS Supervisor** is a person who has successfully completed advancement training and is appropriately qualified to a management level performing one or more management level tasks contributing to the services of the VTS.

**VTS Manager** is a person appropriately qualified possessing managerial qualifications to the satisfaction of the Competent Authority or the Statutory Harbour Authority responsible for the administration of the VTS and interfacing with regional or port management authorities.

<b>Unit 1</b>	<b>Operate communications equipment</b>
<b>Elements</b>	<p>1.1 Monitor the serviceability of the equipment</p> <p>1.2 Use radiotelephone equipment</p> <p>1.3 Use telephone equipment</p> <p>1.4 Use facsimile, telex and electronic mail equipment</p> <p>1.5 Use approved phrases and procedures</p> <p>1.6 Use visual signalling equipment</p> <p>1.7 Use data devices</p>
<b>Scope of this unit</b>	
<p><b>Element 1.1 Monitor the serviceability of the equipment</b> This element concerns the ability of VTS Operators to determine if the equipment is operating correctly and to determine if there are any faults, and how to deal with them.</p> <p><b>Element 1.2 Use radiotelephone equipment</b> This element enables VTS Operators to use radiotelephone equipment effectively.</p> <p><b>Element 1.3 Use telephone equipment</b> This element enables VTS Operators to use telephone equipment effectively.</p> <p><b>Element 1.4 Use facsimile, telex and electronic mail equipment</b> This element enables VTS Operators to use facsimile, telex and electronic mail equipment effectively.</p> <p><b>Element 1.5 Use approved phrases and procedures</b> This element enables VTS Operators to communicate using approved phrases and procedures so that their verbal communications can be understood without ambiguity.</p> <p><b>Element 1.6 Use visual signalling equipment</b> This element enables VTS Operators to use visual signalling equipment effectively.</p> <p><b>Element 1.7 Use data devices</b> This element enables VTS Operators to use data recording, data management systems and data export devices.</p>	

<b>Unit 1</b>	<b>Operate communications equipment</b>	
<b>Element</b>	<b>1.1 Monitor the serviceability of the equipment</b>	
<b>Resources and aids</b>	VHF Transceiver Intercom Telephone Telex Facsimile (fax) E-mail DSC AIS Data links Visual signalling equipment Local/national networked emergency communication systems Operational manuals	
<b>What you must do:</b>	<b>What you need to know:</b>	
1.1.1 Hold a valid GMDSS Restricted Operator's Certificate or acceptable equivalent approved by the Competent Authority for VTS.  1.1.2 Continually check the alarms and indications whilst making and receiving transmissions.  1.1.3 Check and respond appropriately to documentation relating to equipment status.  1.1.4 Continually monitor the operational and functional integrity of the equipment.  1.1.5 Take prompt and appropriate reporting action in respect of observed defects, failures and channel saturation.  1.1.6 Take appropriate action to follow-up equipment malfunction reports in accordance with standard operating procedures.	<b>Health and Safety</b> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <b>Organisational</b> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <b>Personal and Interpersonal</b> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <b>Technical</b> <p>Theory of operation of VHF, DSC, Telex, Facsimile, AIS.  Practical use of VHF, DSC, Telex, Facsimile, AIS.  Operational manuals for all communications equipment used.</p>	

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<b>Unit 1</b>	<b>Operate communications equipment</b>	
<b>Element</b>	<b>1.2 Use radiotelephone equipment</b>	
<b>Resources and aids</b>	Main transceiver Standby transceiver Reserve transceiver (if applicable) Recording subsystems Operational manuals	
<b>What you must do:</b>		<b>What you need to know:</b>
1.2.1	Be aware of the operating and legal limitations of the VTS radio station licence and operating criteria.	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Frequencies / channels in the International VHF Maritime Mobile band.</li> <li>➤ Simplex and duplex operation.</li> <li>➤ Port operations and ship movement channels.</li> <li>➤ Distress, safety and calling frequencies / channels (VHF &amp; DSC).</li> <li>➤ Automatic Information Systems.</li> <li>➤ Operational manuals.</li> </ul>
1.2.2	Select transceiver and use the appropriate frequency / channel correctly.	
1.2.3	Use the transmit switch correctly.	
1.2.4	Be aware of the standby channels and aerials.	

<b>Unit 1</b>	<b>Operate communications equipment</b>	
<b>Element</b>	<b>1.3 Use telephone equipment</b>	
<b>Resources and aids</b>	Main telephone system Standby telephone system Mobile telephone system Headsets / handsets Mute switches Recording systems Call routing selector panels Operational manuals	
<b>What you must do:</b>	<b>What you need to know:</b>	
1.3.1 Select and use the appropriate telephone correctly.  1.3.2 Use the ancillary telephone equipment correctly.	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Principles and procedures of operation of the telephone equipment and ancillary equipment.</li> <li>➤ Operational manuals.</li> </ul>	

<b>Unit 1</b>	<b>Operate communications equipment</b>	
<b>Element</b>	<b>1.4 Use facsimile, telex and electronic mail equipment</b>	
<b>Resources and aids</b>	Facsimile Telex Electronic mail Operational manuals	
<b>What you must do:</b>		<b>What you need to know:</b>
<p>1.4.1 Use the facsimile equipment correctly.</p> <p>1.4.2 Use the telex equipment correctly.</p> <p>1.4.3 Use Electronic mail (E-mail) communication equipment correctly.</p>		<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Principles and procedures of operation of facsimile equipment.</li> <li>➤ Principles and procedures of operation of telex equipment.</li> <li>➤ Principles and procedures of operation of e-mail equipment.</li> </ul>

<b>Unit 1</b>	<b>Operate communications equipment</b>	
<b>Element</b>	<b>1.5 Use approved phrases and procedures</b>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>1.5.1 Use standard speech technique correctly.</p> <p>1.5.2 Use international radio communication procedures correctly.</p> <p>1.5.3 Use appropriate message format and protocols.</p> <p>1.5.4 Compose relevant messages that are concise, unambiguous and do not contain conditional words.</p> <p>1.5.5 Use station identity correctly.</p> <p>1.5.6 Use standard marine communication phrases (SMCP) correctly in message composition.</p> <p>1.5.7 Use SMCP message markers when appropriate.</p> <p>1.5.8 Use abbreviated phrases when appropriate.</p> <p>1.5.9 Consider the status and legal implications of messages. In particular, the use of message markers "Warning", "Information", "Advice" and "Instruction".</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ National and International regulations for radiotelephone operation including GMDSS.</li> <li>➤ Distress, urgency, safety communications procedures.</li> <li>➤ International Aeronautical and Maritime Search and Rescue (IAMSAR) procedures.</li> <li>➤ Use of reference publications and on-line references to obtain identification data such as call-signs and other alpha-numeric information.</li> <li>➤ English in a marine context.</li> <li>➤ IMO standard Marine Communications Phrases (SMCP).</li> <li>➤ Diction.</li> <li>➤ Clarity and organisation of communication: oral and written.</li> </ul>	

<b>Unit 1</b>	<b>Operate communications equipment</b>	
<b>Element</b>	<b>1.6 Use visual signalling equipment</b>	
<b>Resources and aids</b>	Port traffic signals (lock or canal) Signal flags Digital readouts on docks International Code of Signals	
<b>What you must do:</b>		<b>What you need to know:</b>
1.6.1	Issue port visual signals correctly when required.	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Standard operating procedure for use of 'port/lock open/closed' signals.</li> </ul>
1.6.2	Ensure that subsequent recipient action conforms to that required by a visual signal.	

<b>Unit 1</b>	<b>Operate communications equipment</b>
<b>Element</b>	<b>1.7 Use data devices</b>
<b><i>Resources and aids</i></b>	Telephone and other voice recording systems Data recording systems Data management systems Data export systems Radar image recording VTS Tracking systems recording devices

<b>What you must do:</b>	<b>What you need to know:</b>
<p>1.7.1 Know your responsibility for setting up data recording devices in accordance with the standard operating procedures.</p> <p>1.7.2 Check status of recording equipment as per standard operating procedures.</p> <p>1.7.3 Monitor the operational and functional integrity of the recording equipment as per standard operating procedures.</p> <p>1.7.4 Refresh recording device as stipulated by standard operating procedures.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Principles and procedures for operation of recording devices.</li> <li>➤ Standard operating procedure for use of recording equipment.</li> </ul>

<b>Unit 2</b>	<b>Maintain and update vessel traffic image</b>
<b>Elements</b>	<p><b>2.1 Make a full appraisal of all significant vessel traffic in the VTS area</b></p> <p><b>2.2 Correctly identify all significant vessel traffic in the VTS area</b></p> <p><b>2.3 Correctly identify all significant vessel traffic entering the VTS area</b></p> <p><b>2.4 Promptly contact all significant unidentified vessel traffic entering the VTS area</b></p>
<b>Scope of this unit</b>	
<p><b>Element 2.1 Make a full appraisal of all significant vessel traffic in the VTS area</b> This element concerns the ability of VTS Operators to be aware of all significant vessel traffic in the VTS area.</p> <p><b>Element 2.2 Correctly identify all significant vessel traffic in the VTS area</b> This element concerns the ability of VTS Operators to correctly identify all significant vessel traffic in the VTS area.</p> <p><b>Element 2.3 Correctly identify all significant vessel traffic entering the VTS area</b> This element concerns the ability of VTS Operators to correctly identify all significant vessel traffic entering the VTS area.</p> <p><b>Element 2.4 Promptly contact all significant unidentified vessel traffic entering the VTS area</b> This element concerns the ability of VTS Operators to contact and attempt to identify all significant unidentified vessel traffic entering the VTS area.</p>	

<b>Unit 2</b>	<b>Maintain and update vessel traffic image</b>	
<b>Element</b>	<b>2.1 Make a full appraisal of all significant vessel traffic in the VTS area</b>	
<b>Equipment in use and source information available</b>	<p>Equipment: Mandatory – VHF, manual plotting facility, telephone, facsimile. Optional – Marine radar, Marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV.</p> <p>Sources of information: Watch hand over briefing. Visual lookout. Reports from vessels. Information obtained from vessels. Information obtained from shipping agents and others.</p>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>2.1.1 Obtain briefing on all significant vessel traffic in the VTS area before taking over watch.</p> <p>2.1.2 Create a dynamic traffic image to take account of present and developing situations that impact or will impact vessel traffic in the VTS area.</p> <p>2.1.3 Maintain a continuous watch of all significant vessel traffic in the VTS area.</p> <p>2.1.4 Be aware of the intentions and sailing plans of all significant vessel traffic.</p> <p>2.1.5 Be aware of the ship type or special characteristics of vessels that may influence the safe and normal operation of traffic flow in the VTS area.</p> <p>2.1.6 Be aware of the cargo characteristics on board vessels that may influence their safe and normal operation in the VTS area.</p> <p>2.1.7 Continuously assess the risks posed by vessel traffic with respect to the safety and efficiency of vessel traffic and the threat of environmental pollution.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational.</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication / reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Principles, controls and operations of VHF, telephone, facsimile, marine radar, marine radar + tracking system, VTS radar + tracking system, ENC, GIS, VHF/ DF, AIS, CCTV.</li> <li>➤ Operational manuals.</li> </ul>	

<b>Unit 2</b>	<b>Maintain and update vessel traffic image</b>	
<b>Element</b>	<b>2.2 Correctly identify all significant vessel traffic in the VTS area</b>	
<b>Equipment in use and source information available</b>	<p>Equipment: Mandatory – VHF, manual plotting facility, telephone, facsimile. Optional – Marine radar, Marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV.</p> <p>Sources of information:</p> <ul style="list-style-type: none"> <li>➤ Lookout using all available means appropriate to the prevailing circumstances and conditions.</li> <li>➤ Reports from vessels.</li> <li>➤ Information obtained from vessels.</li> <li>➤ Information obtained from shipping agents and others.</li> </ul>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>2.2.1 Use all available means to correctly identify all significant vessel traffic in the VTS area.</p> <p>2.2.2 Correctly establish the identity of vessel traffic in the VTS area using vessel name/call sign or other appropriate means of identification.</p> <p>2.2.3 Deal with unidentified vessels in accordance with standing operating procedures when it is not possible to obtain a positive identification.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Principles, controls and operations of VHF, telephone, facsimile, marine radar, marine radar + tracking system, VTS radar + tracking system, ENC, GIS, VHF/ DF, AIS, CCTV.</li> <li>➤ Operational manuals.</li> </ul>	

<b>Unit 2</b>	<b>Maintain and update vessel traffic image</b>	
<b>Element</b>	<b>2.3 Correctly identify all significant vessel traffic entering the VTS area</b>	
<b><i>Equipment in use and source information available</i></b>	<p>Equipment: Mandatory – VHF, manual plotting facility, telephone, facsimile. Optional – Marine radar, Marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV.</p> <p>Sources of information:</p> <ul style="list-style-type: none"> <li>➤ Lookout using all available means appropriate to the prevailing circumstances and conditions.</li> <li>➤ Reports from vessels.</li> <li>➤ Information obtained from vessels.</li> <li>➤ Information obtained from shipping agents and others.</li> </ul>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>2.3.1 Use all available means to correctly identify all significant vessel traffic entering the VTS area.</p> <p>2.3.2 Correctly establish the identity of vessel traffic entering the VTS area using vessel name/call sign or other appropriate means of identification.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Principles, controls and operations of VHF, telephone, facsimile, marine radar, marine radar + tracking system, VTS radar + tracking system, ENC, GIS, VHF/ DF, AIS, CCTV.</li> <li>➤ Operational manuals.</li> </ul>	

<b>Unit 2</b>	<b>Maintain and update vessel traffic image</b>	
<b>Element</b>	<b>2.4 Promptly contact all significant unidentified vessel traffic entering the VTS area</b>	
<b>Equipment in use and source information available</b>	<p><b>Equipment:</b> Mandatory – VHF, manual plotting facility, telephone, facsimile. Optional – Marine radar, Marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV.</p> <p><b>Sources of information:</b></p> <ul style="list-style-type: none"> <li>➤ Lookout using all available means appropriate to the prevailing circumstances and conditions.</li> <li>➤ Reports from vessels.</li> <li>➤ Information obtained from vessels.</li> <li>➤ Information obtained from shipping agents and others.</li> </ul>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>2.4.1 Use all available means to establish contact with all significant unidentified vessel traffic entering the VTS area.</p> <p>2.4.2 Correctly establish the identity of unidentified vessel traffic within or entering the VTS area.</p> <p>2.4.3 Correctly establish the intentions and sailing plans of newly identified vessel traffic entering the VTS area.</p> <p>2.4.4 Deal with unidentified vessels in accordance with standard operating procedures when it is not possible to obtain a positive identification.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Principles, controls and operations of VHF, telephone, facsimile, marine radar, marine radar + tracking system, VTS radar + tracking system, ENC, GIS, VHF/ DF, AIS, CCTV.</li> <li>➤ Operational manuals.</li> </ul>	

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<b>Unit 3</b>	<b>Monitor the present and forecast meteorological and hydrological conditions</b>
<b>Elements</b>	<p><b>3.1 Determine the present and forecast meteorological and hydrological conditions</b></p> <p><b>3.2 Receive, monitor and respond to meteorological and hydrological information</b></p>
<b>Scope of this unit</b>	
<p><b>Element 3.1 Determine the present and forecast meteorological and hydrological conditions</b></p> <p>This element concerns the ability of VTS Operators to obtain present and forecast meteorological and hydrological conditions.</p> <p><b>Element 3.2 Receive, monitor and respond to meteorological and hydrological information</b></p> <p>This element enables VTS Operators to receive, monitor and respond to meteorological and hydrological information.</p>	

<b>Unit 3</b>	<b>Monitor the present and forecast meteorological and hydrological conditions</b>	
<b>Element</b>	<b>3.1 Determine the present and forecast meteorological and hydrological conditions</b>	
<b>Equipment in use and source information available</b>	<p><b>Meteorological</b></p> <ul style="list-style-type: none"> <li>➤ Synoptic charts.</li> <li>➤ Shipping/weather forecasts and warnings from the Meteorological Office.</li> <li>➤ Meteorological forecasts/warnings/reports from other agencies</li> <li>➤ Reports from vessels.</li> <li>➤ Information obtained at the VTS Centre/remote weather stations using data from meteorological sensors (barometers, temperature/humidity indicators, anemometers, visibility sensors, etc).</li> <li>➤ CCTV.</li> </ul> <p><b>Hydrological</b></p> <ul style="list-style-type: none"> <li>➤ Predicted information obtained from tide, current tables and tidal prediction software.</li> <li>➤ Information obtained from tide gauges/sensors.</li> <li>➤ Information obtained from tidal stream indicators/sensors.</li> <li>➤ CCTV.</li> </ul>	
<b>What you must do:</b>		<b>What you need to know:</b>
3.1.1	Obtain briefing on appropriate meteorological information before taking over watch.	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul>
3.1.2	Obtain briefing on appropriate hydrological information before taking over watch.	

What you must do:	What you need to know (continued):
	<p><b>Technical</b></p> <ul style="list-style-type: none"><li>➤ Principles, controls and operations of barometers, temperature/humidity indicators, anemometers and visibility sensors.</li><li>➤ Reading synoptic charts.</li><li>➤ Reading tide tables.</li><li>➤ Reading current tables.</li><li>➤ Calculating intermediate tidal heights and times.</li><li>➤ Overview of tide tables for primary and secondary ports.</li></ul>

<b>Unit 3</b>	<b>Monitor the present and forecast meteorological and hydrological conditions</b>	
<b>Element</b>	<b>3.2 Receive, monitor and respond to meteorological and hydrological information</b>	
<b>Resources and aids</b>	Relevant meteorological and hydrological information from organisations and sensors.	
<b>What you must do:</b>		<b>What you need to know:</b>
3.2.1	Obtain and maintain a dynamic situational awareness of the meteorological and hydrological conditions.	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Format of broadcast of meteorological and hydrological information.</li> </ul>
3.2.2	Correctly recognise significant changes in meteorological and hydrological conditions.	
3.2.3	Respond appropriately to significant changes.	
3.2.4	Disseminate essential meteorological / hydrological information as soon as practicable to stakeholders.	

<b>Unit 4</b>	<b>Application of nautical knowledge</b>
<b>Elements</b>	<p><b>4.1 Chartwork</b></p> <p><b>4.2 Appreciation of Collision Regulations</b></p> <p><b>4.3 Appreciation of Marine Aids to Navigation</b></p> <p><b>4.4 Appreciation of Marine Navigational Aids</b></p> <p><b>4.5 Appreciation of shipboard knowledge</b></p> <p><b>4.6 Appreciation of port operations</b></p>
<b>Scope of this unit</b>	
<p><b>Element 4.1 Chartwork</b> This element concerns the ability of VTS Operators to carry out chart work in the context of VTS.</p> <p><b>Element 4.2 Appreciation of Collision Regulations</b> This element concerns the ability of VTS Operators to be aware of and appreciate the importance of the International Regulations for Preventing Collisions at Sea and the responsibilities that vessels have in complying with these rules.</p> <p><b>Element 4.3 Appreciation of Marine Aids to Navigation</b> This element concerns the ability of VTS Operators to be aware of and appreciate the various marine aids to navigation, their advantages and limitations.</p> <p><b>Element 4.4 Appreciation of Marine Navigational Aids</b> This element concerns the ability of VTS Operators to be aware of and appreciate the various marine navigational aids, their advantages and limitations.</p> <p><b>Element 4.5 Appreciation of shipboard knowledge</b> This element concerns the ability of VTS Operators to be familiar with ship terminology, types of ship and the various cargoes they carry, basic ship stability and ship manoeuvring and handling. The VTS Operator also needs to be aware of the duties and responsibilities of a ship's master and other members of the bridge team and the contribution that each person makes in the safe navigation of the vessel.</p> <p><b>Element 4.6 Appreciation of port operations</b> This element concerns the ability of VTS Operators to identify the various stakeholders involved in port operations, know how they interact with the VTS and be informed of the contribution that each stakeholder makes in promoting the safety and efficiency of the port.</p>	

<b>Unit 4</b>	<b>Application of nautical knowledge</b>	
<b>Element</b>	<b>4.1 Chartwork</b>	
<b><i>Equipment in use and source information available</i></b>	<p><b>Publications:</b> Paper and electronic charts Chart plotting instruments: parallel rulers, compass, dividers. Stationery: Chart pencils, erasers Nautical publications: Admiralty List of Lights, Admiralty List of Radio Signals, Admiralty Tide Tables, Tidal Stream Atlases and Notices to Mariners, Symbols and Abbreviations used on Admiralty Charts (Chart 5011).</p> <p><b>Equipment:</b> Mandatory – VHF, manual plotting facility, telephone, facsimile. Optional – Marine radar, Marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV. Sources of information: Watch hand over briefing. Visual lookout. Reports from vessels. Information obtained from vessels. Information obtained from stakeholders.</p>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>4.1.1 Differentiate between different chart projections and datums.</p> <p>4.1.2 Read and interpret the information displayed on a nautical chart.</p> <p>4.1.3 Recognise the various symbols used on a chart and be aware of the importance of the symbols to mariners and VTS.</p> <p>4.1.4 Find geographical positions on the chart given either, a latitude and longitude, or a range and bearing from a landmark or beacon.</p> <p>4.1.5 Use chart plotting instruments to plot bearings, position lines, positions and measure distances on charts.</p> <p>4.1.6 Define the term “cocked hat” and state its limitations.</p> <p>4.1.7 Read courses off a chart using parallel rulers.</p> <p>4.1.8 Lay courses on a chart using parallel rulers.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication/reporting in the workplace.</li> </ul>	

<b>What you must do (continued):</b>	<b>What you need to know:</b>
<p>4.1.9 Correctly extract and interpret information contained in Notices to Mariners.</p> <p>4.1.10 Be informed of the procedures for chart correction.</p> <p>4.1.11 Correct charts and publications using Notices to Mariners and all other available information.</p> <p>4.1.12 Calculate and measure Dead Reckoning (DR) position and Estimated Position (EP) on charts.</p> <p>4.1.13 Use speed / time / distance formula (<math>S \times T = D</math>) in simple and complex situations.</p> <p>4.1.14 Appreciate the difference between true and magnetic courses.</p> <p>4.1.15 Define the term 'variation', 'deviation', and 'compass error'.</p> <p>4.1.16 Appreciate the problems associated with using magnetic compass courses for plotting positions in the VTS Centre.</p> <p>4.1.17 Use chartwork skills to project traffic flows. This should involve use of DR and EP, ascertaining waterway information using charts and symbols and formulating plans of action using all available information.</p> <p>4.1.18 Define the following terms relating to tides and tidal streams:</p> <ul style="list-style-type: none"> <li>➤ Chart datum</li> <li>➤ Height of tide</li> <li>➤ Spring tide</li> <li>➤ Neap tide</li> <li>➤ Ebb / flow / slack / eddies</li> <li>➤ Freshet</li> <li>➤ Set / rate / drift</li> <li>➤ Diurnal / semi-diurnal</li> <li>➤ Storm surges</li> </ul> <p>4.1.19 Read information contained in tide tables.</p> <p>4.1.20 Read information contained in tidal stream atlas.</p>	

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<b>What you must do (continued):</b>	<b>What you need to know:</b>
4.1.21 Calculate intermediate heights and times of tide at primary ports. 4.1.22 Be aware of determining intermediate heights and times of tide at secondary ports.	

<b>Unit 4</b>	<b>Application of nautical knowledge</b>	
<b>Element</b>	<b>4.2 Appreciation of Collision Regulations</b>	
<b>Equipment in use and source information available</b>	<p><b>Equipment:</b> Mandatory – VHF, manual plotting facility, telephone, facsimile. Optional – Marine radar, Marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV.</p> <p><b>Sources of information:</b> Lookout using all available means appropriate to the prevailing circumstances and conditions. Reports from vessels. Information obtained from vessels. Information obtained from other stakeholders. COLREGS.</p>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>4.2.1 Appreciate the contents of the International Regulations for Preventing Collisions at Sea (COLREGS).</p> <p>4.2.2 Identify basic lights, shapes and sound signals as described in the COLREGS.</p> <p>4.2.3 Identify the international distress signals as described in Annex IV of the COLREGS.</p> <p>4.2.4 Appreciate the obligations of vessel to comply with the COLREGS.</p> <p>4.2.5 Know the local variances to the COLREGS.</p> <p>4.2.6 Apply the COLREGS in the VTS context with respect to conduct of vessels in narrow channels or in traffic separation schemes.</p> <p>4.2.7 Enforce COLREGS in accordance with local law and standard operating procedures.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <p>Mandatory – Principles of manual plotting facility, Principles, controls and operation of VHF, telephone, facsimile. Optional – Principles, controls and operations of marine radar, marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV.</p>	

<b>Unit 4</b>	<b>Application of nautical knowledge</b>	
<b>Element</b>	<b>4.3 Appreciation of Marine Aids to Navigation</b>	
<i>Marine Aids to Navigation in use and source information available</i>	<p><b>Marine Aids to Navigation:</b></p> <p><b>VTS Area:</b> Buoys and beacons. Radar beacons (RACON). Radar enhancing devices.</p> <p><b>Sources of information:</b> Watch take-over briefing and notices. Nautical publications: Admiralty List of Lights, Admiralty List of Radio Signals, Admiralty Tide Tables, Tide Atlas, Notices to Mariners, Symbols and Abbreviations used on Admiralty Charts (Chart 5011). Lookout using all available means appropriate to the prevailing circumstances and conditions. Reports from vessels. Information obtained from vessels. Information obtained from shipping agents and others.</p>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>4.3.1 Correctly identify all the buoys and beacons including sectored and leading lights in the VTS area.</p> <p>4.3.2 Recognise the limitations of the buoys, beacons and radar transponder beacons in the VTS area.</p> <p>4.3.3 Appreciate the function, advantages and limitations of the following aids in the VTS context:</p> <ul style="list-style-type: none"> <li>➤ VHF, Electronic Navigation Chart, Geographic Information System, Automatic Identification System (AIS), Marine radar, Marine radar + tracking system, VTS radar + tracking system, CCTV.</li> </ul>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Principles, controls and operation of VHF, telephone, facsimile, marine radar, marine radar + tracking system, VTS radar + tracking system, CCTV.</li> </ul>	

<b>Unit 4</b>	<b>Application of nautical knowledge</b>	
<b>Element</b>	<b>4.4 Appreciation of Marine Navigational Aids</b>	
<b>Navigational Aids in use and source information available</b>	<p><b>Navigational Aids (Shipboard):</b></p> <p>Radar. Automatic Radar Plotting Aid (ARPA). Gyro and magnetic compass. Echo Sounder. Speed Log. Satellite and terrestrial position fixing systems (e.g. GPS, LORAN). Automatic Identification System (AIS). Electronic Chart Display and Information System (ECDIS). Integrated Bridge Systems.</p> <p><b>Sources of information:</b></p> <p>Watch take-over briefing and notices. Lookout using all available means appropriate to the prevailing circumstances and conditions. Reports from vessels. Information obtained from vessels. Information obtained from shipping agents and others.</p>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>4.4.1 Appreciate the function, advantages and limitations of the following shipboard navigational aids:</p> <ul style="list-style-type: none"> <li>○ Radar</li> <li>○ ARPA</li> <li>○ Gyro and magnetic compass</li> <li>○ Echo Sounder</li> <li>○ Speed Log</li> <li>○ Satellite and terrestrial position fixing systems (e.g. GPS, LORAN)</li> <li>○ Local Area Augmentation (e.g. Differential GPS)</li> <li>○ AIS</li> <li>○ Electronic Chart Display and Information System (ECDIS)</li> <li>○ Integrated Bridge Systems</li> <li>○ Portable Pilot Navaid Units</li> </ul>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul>	

<b>Unit 4</b>	<b>Application of nautical knowledge</b>	
<b>Element</b>	<b>4.5 Appreciation of shipboard knowledge</b>	
<i>Learning can be achieved by a combination of</i>	<ul style="list-style-type: none"> <li>➤ Study of marine publications and texts</li> <li>➤ Ship visits</li> <li>➤ Tripping with pilots</li> <li>➤ Tripping with pilot launches</li> <li>➤ Simulator course</li> <li>➤ Manned model course</li> </ul>	
<b>What you must do:</b>		<b>What you need to know:</b>
<p>4.5.1 Be familiar with the following ship terminology:</p> <p style="padding-left: 20px;"><u>Technical</u> Ship dimensions – i.e. LOA, LBP, beam, draught, air draught Hull structure – i.e. type of bows and sterns Loadline and draught marks</p> <p style="padding-left: 20px;"><u>Nautical Phrases</u> Directions / relative bearings Numbers Mooring/anchoring terms</p> <p>4.5.2 Identify different types of vessels in the marine environment.</p> <p>4.5.3 Have an appreciation of the various types of cargoes, including dangerous goods, transported on board ship.</p> <p>4.5.4 Define with the aid of simple diagrams the term 'heel', 'list' and 'trim' as applied to ship stability.</p> <p>4.5.5 Have an appreciation of the factors that influence ship stability.</p> <p>4.5.6 Recognise dangerous situations regarding ship stability.</p> <p>4.5.7 Identify the elements of ship handling with respect to:</p> <ul style="list-style-type: none"> <li>➤ Effect of pivot point on ship handling.</li> <li>➤ Line of approach.</li> </ul>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul>	

<b>What you must do (continued):</b>	<b>What you need to know:</b>
<ul style="list-style-type: none"> <li>➤ Stopping characteristics.</li> <li>➤ Turning characteristics</li> <li style="padding-left: 20px;">External forces on ship handling – winds and tides.</li> <li>➤ Effect of interaction and squat.</li> <li>➤ Vessel manoeuvrability.</li> <li>➤ Different types of rudder.</li> <li>➤ Different types of propeller.</li> <li>➤ Thrusters.</li> <li>➤ Use of tugs.</li> </ul> <p>4.5.8 Have an appreciation of the various propulsion systems (i.e. Diesel, Diesel Electric, Gas turbine, Steam, Jet) used on board ships and their limitations.</p> <p>4.5.9 Have an appreciation of the effects of external forces (meteorological and hydrological) on ships – i.e. effects of wind on safety of waterway and ship manoeuvrability, effects of reduced visibility on safety of waterway, effects of high and low pressure systems on water height and depth.</p> <p>4.5.10 Have an appreciation of vessel bridge procedures and operations including shipboard safety management systems (i.e., maintaining a navigational watch under routine circumstances, in pilotage and non-pilotage waters) during routine circumstances, navigating in and in the vicinity of a VTS Area, berthing, unberthing, anchoring.</p> <p>4.5.11 Have an appreciation of the expected actions on board vessels during special circumstances and during emergency situations.</p> <p>4.5.12 Have an appreciation of standard operating procedures to respond to shipboard emergencies that arise in a VTS area.</p>	

<b>Unit 4</b>	<b>Application of nautical knowledge</b>	
<b>Element</b>	<b>4.6 Appreciation of port operations</b>	
<i>Learning can be achieved by a combination of</i>	<ul style="list-style-type: none"> <li>➤ Study of relevant publications and texts.</li> <li>➤ Tripping with pilots.</li> <li>➤ Visits to the various agencies within a port .</li> <li>➤ Tripping with harbour tugs, vessels and patrol craft.</li> </ul>	
<b>What you must do:</b>		<b>What you need to know:</b>
<p>4.6.1 Have an overview of pilotage operations.</p> <p>4.6.2 Appreciate the role and responsibilities of a Pilot when engaged in an act of pilotage.</p> <p>4.6.3 Have an overview of port operations with respect to:</p> <ul style="list-style-type: none"> <li>➤ Interaction of all agencies within a port.</li> <li>➤ Responsibilities of harbour masters and other operational staff.</li> <li>➤ Clearance procedures.</li> <li>➤ Intermodal transport.</li> </ul> <p>4.6.4 Know the Regulations and Acts within a Statutory Harbour Authority / Statutory VTS Authority in the VTS context.</p> <p>4.6.5 Have an overview of the security of the VTS Centre and the port.</p> <p>4.6.6 Know the types of tugs used in port operations and have an overview of towing operations.</p> <p>4.6.7 Take account of the special considerations given to tugs and tows.</p> <p>4.6.8 Have an overview of the role and general duties of shipping agents.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description / specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Principles, controls and operation of VHF, telephone, facsimile, marine radar, marine radar + tracking system, VTS radar + tracking system, CCTV.</li> </ul>	

<b>Unit 5</b>	<b>Communicate with stakeholders</b>
<b>Elements</b>	<b>5.1 General communication skills</b> <b>5.2 Effective communications</b> <b>5.3 Log and record keeping</b>
<b>Scope of this unit</b>	
<b>Element 5.1 General Communication Skills</b> This element concerns the ability of VTS Operators to understand the basics of communication.	
<b>Element 5.2 Effective Communications</b> This element enables VTS Operators to communicate effectively.	
<b>Element 5.3 Log and Record Keeping</b> This element enables VTS Operators to differentiate between logs and records and to maintain effective logs and records.	

<b>Unit 5</b>	<b>Communicate with stakeholders</b>	
<b>Element</b>	<b>5.1 General communication skills</b>	
<b>Communication between VTS Operators and:</b>	<ul style="list-style-type: none"> <li>➤ Other VTS personnel in the VTS Centre or other VTS Centres.</li> <li>➤ Masters and/or watchkeeping officers on participating vessels.</li> <li>➤ Pilots on participating vessels.</li> <li>➤ Allied services.</li> <li>➤ Port services.</li> <li>➤ Other stakeholders.</li> </ul>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>5.1.1 Consider the various aspects of interpersonal communications.</p> <p>5.1.2 Take account of problems that can block or hinder the communications process.</p> <p>5.1.3 Identify the differences between verbal and non-verbal communications.</p> <p>5.1.4 Recognise cultural aspects that can hinder the acquisition of a common understanding of messages communicated.</p> <p>5.1.5 Use effective questioning techniques.</p> <p>5.1.6 Contribute to a discussion about a straightforward subject. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Make clear and relevant contributions in a way that suits your purpose and situation.</li> <li>➤ Listen and respond appropriately to what others say.</li> <li>➤ Help to move the discussion forward.</li> </ul> <p>5.1.7 Give a short talk about a straightforward subject, using an image. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Speak clearly in a way that suits your subject, purpose and situation.</li> </ul>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Theory of interpersonal communications.</li> <li>➤ Procedures to enhance effective communications.</li> <li>➤ Verbal and non-verbal communications.</li> <li>➤ Cultural aspects and common understanding of messages communicated.</li> </ul> <p><b><i>In discussions</i></b>, you need to know how to:</p> <ul style="list-style-type: none"> <li>➤ Use varied vocabulary and expressions to suit your purpose (<i>e.g. to present an argument, express ideas or opinions, exchange information</i>).</li> <li>➤ Adapt your contributions to suit different situations (<i>e.g. the amount you say, your manner and tone of voice</i>).</li> <li>➤ Show you are listening closely (<i>e.g. by body language</i>) and respond appropriately (<i>e.g. make tactful comments, ask questions to show interest</i>).</li> </ul>	

<b>What you must do (continued):</b>	<b>What you need to know:</b>
<p>➤ Keep to the subject and structure your talk to help listeners follow what you are saying.</p> <p>➤ Use an image to clearly illustrate your main points.</p> <p>5.1.8 Read and summarise information from at least two extended documents about a straightforward subject. One of these documents should include at least one image. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Select and read relevant material;</li> <li>➤ Identify accurately the lines of reasoning and main points from texts and images; and</li> <li>➤ Summarise the information to suit your purpose.</li> </ul> <p>5.1.9 Write at least two different types of documents about straightforward subjects. One piece of writing should be an extended document and include at least one image. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Present relevant information in an appropriate form.</li> <li>➤ Use structure and style of writing to suit your purpose.</li> <li>➤ Ensure text is legible and that spelling, punctuation and grammar are accurate, so your meaning is clear.</li> </ul>	<p>Identify the speaker's intentions (<i>e.g. by manner, tone of voice, vocabulary</i>).</p> <p>Move the discussion forward (<i>e.g. summarise, develop points, focus on purpose</i>).</p> <p><b><i>In giving a short talk</i></b> you need to know how to:</p> <ul style="list-style-type: none"> <li>➤ Prepare for the talk (<i>e.g. research the topic, make notes, chose images</i>).</li> <li>➤ Adapt your language to suit the subject, purpose and situation (<i>e.g. use STANDARDS English, avoid or explain technical terms, keep attention by varying tone of voice, give examples</i>).</li> <li>➤ Structure what you say help listeners follow a line of thought or series of events (<i>e.g. by signalling new points: firstly ....., secondly ....., and finally</i>).</li> <li>➤ Use images to help others understand the main points of your talk (<i>e.g. charts, pictures, sketches, plans, diagrams or models to show what you mean</i>).</li> </ul> <p><b><i>In reading and summarising information</i></b> you need to know how to:</p> <ul style="list-style-type: none"> <li>➤ Use different sources to obtain relevant information (<i>e.g. to obtain and compare facts, opinions or ideas, obtain instructions or directions</i>).</li> <li>➤ Skim materials to gain a general idea of content and scan text to identify the information you need from straightforward, extended documents, (<i>e.g. text books, articles of more than three pages with key points easily identified</i>).</li> <li>➤ Recognise the writer's intentions (<i>e.g. by tone, vocabulary, structure of text</i>).</li> <li>➤ Identify main lines of reasoning (<i>e.g. by signal words such as 'therefore', 'so', 'whereas'</i>) and main points from text and images (<i>e.g. pictures, charts, diagrams</i>).</li> <li>➤ Summarise information for a purpose (<i>e.g. a talk or written report</i>).</li> </ul>

What you must do:	What you need to know (continued):
	<p><b><i>In writing documents</i></b> you need to know how to:</p> <ul style="list-style-type: none"> <li>➤ Present written information in different forms (<i>e.g. letters, memos, extended documents such as essays or reports of more than three pages</i>) including images (<i>e.g. pictures, sketches, charts, diagrams</i>).</li> <li>➤ Structure your material to help readers follow what you have written and understand the main point (<i>e.g. use paragraphs, headings and sub-headings</i>).</li> <li>➤ Use different styles of writing to suit different purposes (<i>e.g. persuasive techniques to present arguments technical vocabulary, supporting evidence for reports</i>).</li> <li>➤ Make meaning clear by writing, proof-reading and re-drafting documents so that: <ul style="list-style-type: none"> <li>✓ Words most often used in your work or studies are spelled correctly and spelling of irregular words is checked (<i>e.g. use a dictionary or spell checker</i>).</li> <li>✓ Complex sentences are formed correctly (<i>e.g. use of 'but', 'then', 'because', consistent use of tense</i>).</li> <li>✓ Punctuation is accurate (<i>e.g. use of commas, apostrophes, inverted commas</i>).</li> </ul> </li> </ul>

<b>Unit 5</b>	<b>Communicate with stakeholders</b>	
<b>Element</b>	<b>5.2 Effective communications</b>	
<b>Communications between VTS Operators and:</b>	<ul style="list-style-type: none"> <li>➤ Other VTS personnel in the VTS Centre or other VTS Centres.</li> <li>➤ Masters and/or watchkeeping officers on participating vessels.</li> <li>➤ Pilots on participating vessels.</li> <li>➤ Allied services.</li> <li>➤ Port services.</li> <li>➤ Other stakeholders.</li> </ul>	
<b>What you must do:</b>		<b>What you need to know:</b>
<p>5.2.1 Collect data from all available sources and consider the influence of the regulations and the statutory authority of VTS.</p> <p>5.2.2 Evaluate data in order to prioritise and formulate a plan of action for communications. Identify objectives, define resources and take account of contingency plans. Consider 'worst case' and 'what if' scenarios when developing an action plan. Execute plan, evaluate progress and modify plan or objectives as necessary.</p> <p>5.2.3 Disseminate essential information to stakeholders and consider the phrasing, timing and content of message.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> </ul> <p><b>Technical</b></p> <p>Data collection methods.  Data evaluation methods.  Standard operating procedures.  Contingency Plans.  Relevant regulations and statutory authority of VTS.  Data dissemination methods.</p>	

<b>Unit 5</b>	<b>Communicate with stakeholders</b>	
<b>Element</b>	<b>5.3 Log and record keeping</b>	
<b>Communications between VTS Operators and:</b>	<ul style="list-style-type: none"> <li>➤ Other VTS personnel in the VTS Centre or other VTS Centres.</li> <li>➤ Masters and/or watchkeeping officers on participating vessels.</li> <li>➤ Pilots on participating vessels.</li> <li>➤ Allied services.</li> <li>➤ Port services.</li> </ul>	
<b>What you must do:</b>		<b>What you need to know:</b>
<p>5.3.1 Know the objectives, purpose, statutory requirements and legal implications of log and record keeping.</p> <p>5.3.2 Know the difference between logs and records.</p> <p>5.3.3 Keep an accurate, factual, complete, chronological, legible and standardised log of events, hand written, manual typewritten or electronic, as required by the standard operating procedures.</p> <p>5.3.4 Know the purpose, benefits and difficulties of electronic log keeping.</p> <p>5.3.5 Know the methods by which information (voice, radar/video, data) is recorded in electronic logs.</p> <p>5.3.6 Retain logs and records, hand written or manual typewritten, in a secure environment as per national statutory requirements and standard operating procedures.</p> <p>5.3.7 Retain electronic logs and records, with back-up arrangements, in a secure environment as per national statutory requirements and standard operating procedures.</p> <p>5.3.8 Know that data contained in logs and records may be used for statistical process control or to input into local / national / international databases for accident investigation.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Data collection methods.</li> <li>➤ Data evaluation methods.</li> <li>➤ Standard operating procedures.</li> <li>➤ Contingency Plans.</li> <li>➤ Relevant regulations and statutory authority of VTS.</li> <li>➤ Data dissemination methods.</li> </ul>	

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<b>What you must do (continued):</b>	<b>What you need to know:</b>
5.3.9 Know the purpose, statutory requirements and legal implications of statement and report writing. 5.3.10 Know the difference between statements and reports.	

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<b>Unit 6</b>	<b>Application of number &amp; information technology</b>
<b>Elements</b>	<b>6.1 Application of number</b> <b>6.2 Application of information technology</b>
<b>Scope of this unit</b>	
<b>Element 6.1 Application of number</b> This element concerns the ability of VTS Operators to work with numbers.	
<b>Element 6.2 Application of information technology</b> This element concerns the ability of VTS Operators to understand and apply information technology.	

<b>Unit 6</b>	<b>Application of number &amp; information technology</b>	
<b>Element</b>	<b>6.1 Application of number</b>	
<b>Resources and aids</b>	Information and Communications Technology (ICT)	
<b>What you must do:</b>		<b>What you need to know:</b>
<p>6.1.1 Carry through at least one substantial activity that includes straightforward tasks for 6.1.2, 6.1.3 and 6.1.4.</p> <p>6.1.2 Interpret information from at least two different sources, including material containing a graph. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Choose how to obtain the information needed to meet the purpose of your activity.</li> <li>➤ Obtain the relevant information.</li> <li>➤ Select appropriate methods to get the results you need.</li> </ul> <p>6.1.3 Carry out calculations to do with:</p> <p>(a) Amounts and sizes; (b) Scales and proportion; (c) Handling statistics; (d) Using formulae.</p> <p>Evidence must show that you can:</p> <ul style="list-style-type: none"> <li>➤ Carry out calculations, clearly showing your methods and levels of accuracy.</li> <li>➤ Check your methods to identify and correct any errors, and make sure your results make sense.</li> </ul> <p>6.1.4 Interpret the results of your calculations and present your findings. You must use at least one graph, one chart and one diagram.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <p><b><i>In interpreting information</i></b>, you need to know how to:</p> <ul style="list-style-type: none"> <li>➤ Obtain relevant information from different sources (<i>e.g. from written and graphical material, first-hand by measuring or observing</i>).</li> <li>➤ Read and understand graphs, tables, charts and diagrams (<i>e.g. frequency diagrams</i>);</li> <li>➤ Read and understand numbers used in different ways, (<i>e.g. for losses in trading, low temperatures</i>).</li> <li>➤ Estimate amounts and proportions;</li> <li>➤ Read scales on a range of equipment to given levels of accuracy (<i>e.g. to the nearest 10 mm or nearest inch</i>).</li> <li>➤ Make accurate observations (<i>e.g. count the number of vessels per hour</i>).</li> </ul>	

What you must do (continued):	What you need to know (continued):
<p>Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Select effective ways to present your findings.</li> <li>➤ Present effective ways to present your findings.</li> <li>➤ Present your findings clearly and describe your methods.</li> <li>➤ Explain how the results of your calculations meet the purpose of your activity.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Select appropriate methods for obtaining the results you need, including grouping data when this is appropriate (<i>e.g. vessels' draughts, vessel transit times</i>).</li> </ul> <p><b><i>In carrying out calculations</i></b>, you need to know how to:</p> <ul style="list-style-type: none"> <li>➤ Show clearly your methods of carrying out calculations and give the level of accuracy of your results.</li> <li>➤ Carry out calculations involving two or more steps, with numbers of any size.</li> <li>➤ Convert between fractions, decimals and percentages.</li> <li>➤ Convert measurements between systems (<i>e.g. from pounds to kilograms, from nautical miles to metres</i>).</li> <li>➤ Work out areas and volumes (<i>e.g. an area of a container yard, volume of a tank</i>);</li> <li>➤ Work out dimensions from scale drawings (<i>e.g. using a 1:20 scale</i>).</li> <li>➤ Use proportion and calculate using ratios where appropriate.</li> <li>➤ Compare sets of data with a minimum of 20 items (<i>e.g. using percentages, using mean, median, mode</i>).</li> <li>➤ Use range to describe the spread within sets of data.</li> <li>➤ Understand and use given formula (<i>e.g. for calculating estimated time of arrival use <math>Speed = Time \times Distance</math> formula</i>).</li> <li>➤ Check your methods in ways that pick up faults and make sure your results make sense.</li> </ul> <p><b><i>In interpreting results and presenting your findings</i></b>, you need to know how to:</p> <ul style="list-style-type: none"> <li>➤ Select effective ways to present your findings.</li> <li>➤ Construct and use graphs, charts and diagrams (<i>e.g. pie charts, frequency tables, workshop drawing</i>) and follow accepted conventions for labelling these (<i>e.g. appropriate scales and axes</i>).</li> <li>➤ Highlight the main points of your findings and describe your methods.</li> <li>➤ Explain how the results of your calculations meet the purpose of your activity.</li> </ul>

<b>Unit 6</b>	<b>Application of number &amp; information technology</b>	
<b>Element</b>	<b>6.2 Application of information technology</b>	
<b>Resources and aids</b>	Information and Communications Technology	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>6.2.1 Search for, and select, information for at least two different purposes. Evidence must show that you can:</p> <ul style="list-style-type: none"> <li>➤ Identify the information you need and suitable sources.</li> <li>➤ Carry out effective searches.</li> <li>➤ Select information that is relevant to your purpose.</li> </ul> <p>6.2.2 Explore and develop information, and derive new information, for at least two different purposes. Evidence must show that you can:</p> <ul style="list-style-type: none"> <li>➤ Enter and bring together information using formats that help development.</li> <li>➤ Explore information as needed for your purpose.</li> <li>➤ Develop information and derive new information as appropriate.</li> </ul> <p>6.2.3 Present combined information for at least two different purposes. Your work must include at least one example of text, one example of images and one example of numbers. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Select and use appropriate layouts for presenting combined information in a consistent way.</li> </ul>	<p><b><i>In searching for and selecting information</i></b> you need to know how to:</p> <ul style="list-style-type: none"> <li>➤ Identify suitable sources of information (e.g. <i>hand-written documents, material to be scanned, files on disks, CD-ROMs, databases, the internet</i>).</li> <li>➤ Search for information using multiple criteria (e.g. <i>operators such as 'and', 'greater than' and tools such as search engines</i>).</li> <li>➤ Interpret information and decide what is relevant to your purpose (e.g. <i>respond to an enquiry, write a project report, help solve a problem, design or make something</i>).</li> </ul> <p><b><i>In developing information</i></b> you need to know how to:</p> <ul style="list-style-type: none"> <li>➤ Enter and bring together information (e.g. <i>copy and paste or import text, images, numbers</i>) using formats that help development (e.g. using tabs rather than spaces to align text, using tables or frames to position information).</li> <li>➤ Explore information as needed for your purpose (e.g. <i>follow lines of enquiry, explore the effects of changing information in a spreadsheet model to make and test predictions</i>).</li> <li>➤ Develop information in the form of text, images and numbers (e.g. <i>link information, organise information under headings, restructure tables, generate charts and graphs from data, select records or fields and prepare reports from a database</i>).</li> <li>➤ Derive new information (e.g. <i>compare information from different sources to reach a conclusion, use formulae to calculate information such as a total or average</i>).</li> </ul>	

What you must do (continued):	What you need to know (continued):
<ul style="list-style-type: none"> <li>➤ Develop the presentation to suit your purpose and the types of information.</li> <li>➤ Present information effectively, using a format and style that suits your purpose and audience.</li> <li>➤ Ensure your work is accurate and makes sense.</li> </ul>	<p><b><i>In presenting information</i></b> you need to know how to:</p> <ul style="list-style-type: none"> <li>➤ Select and use appropriate layouts for presenting combined information, (<i>e.g. document structures such as margins, columns and headings, borders for images and text, record structures, tables, spreadsheets</i>).</li> <li>➤ Present information in a consistent way, (<i>e.g. paragraph layout, sizes and styles of images and text, alignments, fonts</i>).</li> <li>➤ Ensure your work is accurate and clear (<i>e.g. proof-read, use a spell-checker, seek the views of others</i>) and is saved appropriately (<i>e.g. use suitable folders/directories and file names, avoid loss</i>).</li> </ul> <p>You will also need to know:</p> <ul style="list-style-type: none"> <li>➤ The benefits and disadvantages of using ICT.</li> <li>➤ When it is necessary to observe copyright or confidentiality.</li> <li>➤ How to identify errors and their causes and minimise risk from viruses.</li> <li>➤ How to work safely and minimise risks.</li> </ul>

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<b>Unit 7</b>	<b>Personal attributes</b>
<b>Elements</b>	<p><b>7.1 Working with others</b></p> <p><b>7.2 Personal interaction and human relations</b></p> <p><b>7.3 Responsibility</b></p> <p><b>7.4 Respond to the needs of team members</b></p> <p><b>7.5 Ensure workload is within individual capabilities</b></p> <p><b>7.6 Improving own learning and performance</b></p> <p><b>7.7 Problem solving</b></p>
<b>Scope of this unit</b>	
<p><b>Element 7.1 Working with others</b> This element concerns the ability of VTS Operators to work effectively and co-operatively with others.</p> <p><b>Element 7.2 Personal Interaction and Human Relations</b> This element concerns the ability of VTS Operators to form good relations, negotiate and resolve conflicts with stakeholders. Also to build effective team-working skills.</p> <p><b>Element 7.3 Responsibility</b> This element concerns the ability of VTS Operators to identify the need for safety awareness, personal health (including mental and physical fatigue), punctuality, attentiveness and compliance with the relevant health and safety at work regulations.</p> <p><b>Element 7.4 Respond to the needs of team members</b> This element concerns the ability of VTS Operators to respond promptly to the needs of, monitor the performance of, and provide assistance to team members.</p> <p><b>Element 7.5 Ensure workload is within individual capabilities</b> This element concerns the ability of VTS Operators to ensure that the workload is within individuals' capabilities, monitor the workload, give assistance where necessary and identify variations and deviations in tasks.</p> <p><b>Element 7.6 Improving own learning and performance</b> This element concerns the ability of VTS Operators to agree and meet targets, take responsibility for learning and review progress.</p> <p><b>Element 7.7 Problem solving</b> This element concerns the ability of VTS Operators to explore a complex problem and come up with solutions, plan and implement at least one option for solving a problem, and apply agreed methods to check if a problem has been solved.</p>	

<b>Unit 7</b>	<b>Personal attributes</b>	
<b>Element</b>	<b>7.1 Working with others</b>	
<i><b>This element involves working with:</b></i>	<ul style="list-style-type: none"> <li>➤ Other VTS Operators/Personnel in the VTS Centre or adjoining VTS Centres.</li> <li>➤ Masters and/or watch keeping officers on participating vessels.</li> <li>➤ Pilots on participating vessels.</li> <li>➤ Allied services.</li> <li>➤ Port services.</li> <li>➤ Other VTS Stakeholders.</li> </ul>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>7.1.1 Plan straightforward work with others, identifying objectives and clarifying responsibilities, and confirm working arrangements. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Identify the objectives of working together and what needs to be done to achieve these objectives.</li> <li>➤ Exchange relevant information, to clarify responsibilities.</li> <li>➤ Confirm working arrangements with those involved.</li> </ul> <p>7.1.2 Work co-operatively with others, towards achieving identified objectives, organising tasks to meet your responsibilities. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Organise your own tasks so you can be effective in meeting your responsibilities.</li> <li>➤ Carry out tasks accurately and safely, using appropriate working methods.</li> <li>➤ Support co-operative ways of working, seeking advice from an appropriate person when needed.</li> </ul> <p>7.1.3 Exchange information on progress and agree ways of improving work with others to help achieve objectives.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Theory of interpersonal relationships.</li> <li>➤ Theory of team working.</li> <li>➤ Theory of public relations.</li> </ul>	

<b>What you must do (continued):</b>	<b>What you need to know:</b>
<p>Evidence must show you can:</p> <ul style="list-style-type: none"><li>➤ Provide relevant information on what has gone well and what has gone less well in working with others, including the quality of your work.</li><li>➤ Listen and respond appropriately to progress reports from others.</li><li>➤ Agree ways of improving work with others to help achieve objectives.</li></ul>	

<b>Unit 7</b>	<b>Personal attributes</b>	
<b>Element</b>	<b>7.2 Personal interaction and human relations</b>	
<b>Personal interaction and human relations involves interaction with:</b>	<ul style="list-style-type: none"> <li>➤ Other VTS Operators/Personnel in the VTS Centre or adjoining VTS Centres.</li> <li>➤ Masters and/or watch keeping officers on participating vessels.</li> <li>➤ Pilots on participating vessels.</li> <li>➤ Allied services.</li> <li>➤ Port services.</li> <li>➤ Other VTS Stakeholders.</li> </ul>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>7.2.1 Identify the person that you are responsible to and know the chain of command and structure of your organisation.</p> <p>7.2.2 Maintain good public relations with stakeholders. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Recognise the importance of maintaining good public relations with stakeholders.</li> <li>➤ Be aware of the media and press and their requirements</li> <li>➤ Recognise the implications of adverse media coverage.</li> <li>➤ Be aware of the information that you are authorised to provide to others and the manner of its release.</li> <li>➤ Deal appropriately with traumatised individuals.</li> </ul> <p>7.2.3 Establish and sustain a good working relationship with VTS stakeholders. Evidence must show you can establish and sustain a good working relationship over an extended period of time with:</p> <ul style="list-style-type: none"> <li>➤ Ships' Masters and other members of ships' bridge teams.</li> <li>➤ Marine Pilots.</li> <li>➤ Other authorities and organisations in the VTS context.</li> <li>➤ Allied services.</li> <li>➤ Other services.</li> </ul>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Theory of interpersonal relationships.</li> <li>➤ Theory of team working.</li> <li>➤ Theory of public relations.</li> <li>➤ Roles and responsibilities of VTS stakeholders.</li> </ul>	

<b>What you must do (continued):</b>	<b>What you need to know:</b>
<p>7.2.4 Negotiate with VTS stakeholders. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Negotiate with various stakeholders, both internal and external, in order to discharge your duties / responsibilities and provide a service that incorporates the highest standards of competence, care and courtesy.</li> </ul> <p>7.2.5 Resolve conflicts successfully within the scope of your authority. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Identify when and how to intervene.</li> <li>➤ Be aware of the various ways to achieve successful conflict resolution.</li> <li>➤ Search for fair solutions and balanced needs.</li> <li>➤ Apply a joint problem-solving approach to achieve a win-win situation.</li> </ul> <p>7.2.6 Demonstrate team-working skills. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Lead or follow as the situation may require.</li> <li>➤ Be adaptable/flexible to achieve individual and organisational goals.</li> <li>➤ Conduct an analysis of the role of VTS.</li> <li>➤ Participate in the decision making process by taking initiative, prioritising tasks and thinking critically.</li> <li>➤ Communicate effectively with team members.</li> </ul> <p>7.2.7 Be assertive. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Use appropriate assertiveness to state your case without arousing the defences of stakeholders.</li> </ul>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Theory of interpersonal and human relationships.</li> </ul>

Unit 7	Personal attributes
Element	7.3 Responsibility
<p><b><i>Excessive stress may be indicated by:</i></b></p>	<ul style="list-style-type: none"> <li>➤ Tunnelling of attention.</li> <li>➤ Loss of situational awareness.</li> <li>➤ Ignoring others.</li> <li>➤ Reduced flexibility of approach.</li> <li>➤ Poor decision-making.</li> </ul>
<p><b>Mental and/or physical fatigue may be indicated by:</b></p>	<ul style="list-style-type: none"> <li>➤ Excessive tiredness.</li> <li>➤ Stress symptoms.</li> <li>➤ Irritability.</li> <li>➤ Satisfaction with lower level of performance.</li> <li>➤ Failure to correct errors.</li> <li>➤ Decreased powers of concentration.</li> </ul>
<p><b><i>Factors that affect attention include:</i></b></p>	<ul style="list-style-type: none"> <li>➤ Background noise or chatter.</li> <li>➤ Interruption by other simultaneous tasks.</li> <li>➤ Routine jobs or low workload that induce boredom.</li> <li>➤ Fatigue.</li> <li>➤ Morale.</li> <li>➤ Substance abuse.</li> </ul>
<p><b>Concentration may be affected by:</b></p>	<ul style="list-style-type: none"> <li>➤ Boredom.</li> <li>➤ Previous and future tasks.</li> <li>➤ Distractions.</li> <li>➤ Stress.</li> <li>➤ Fitness.</li> </ul>

<b>What you must do:</b>	<b>What you need to know:</b>
<p>7.3.1 Maintain safety awareness. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Identify the factors required to maintain personal safety.</li> <li>➤ Take reasonable steps to maintain personal safety.</li> <li>➤ Take reasonable care for your own safety and that of others who may be affected by your acts or omissions.</li> <li>➤ Co-operate with anyone carrying out health &amp; safety duties – including complying with control measures identified during the employer's evaluation of risk.</li> <li>➤ Report any identified serious hazards or deficiencies immediately to the appropriate designated person/authority.</li> <li>➤ Make proper use of equipment and treat any hazard to health or safety with due caution.</li> </ul> <p>7.3.2 Take responsibility for your personal health. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Identify the causes of stress.</li> <li>➤ Correctly recognise the symptoms of work-related stress and take appropriate action to manage excessive stress.</li> <li>➤ Correctly recognise the symptoms of personal stress and take appropriate action to manage excessive stress.</li> <li>➤ Recognise the dangers of substance abuse and take appropriate action to prevent substance abuse.</li> <li>➤ Comply with rules and regulations covering the use/consumption of alcohol or of illegal substances.</li> <li>➤ Recognise and be aware that some forms of medication may produce undesired side effects that may affect performance at work.</li> </ul>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable Health &amp; Safety at Work legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Technical/theoretical</b></p> <ul style="list-style-type: none"> <li>➤ Individual duties and responsibilities with respect to Health &amp; Safety at Work legislation.</li> <li>➤ Risk management.</li> <li>➤ Human factors.</li> <li>➤ Stress management.</li> <li>➤ Time management.</li> </ul>

<b>What you must do (continued):</b>	<b>What you need to know:</b>
<p>7.3.3 Take responsibility for the safety of VTS stakeholders who may be affected by your acts or omissions. Evidence must show that you can discharge your duties in a manner such that the safety of VTS stakeholders is not compromised.</p> <p>7.3.4 Correctly recognise the symptoms of mental and/or physical fatigue and act appropriately.</p> <p>7.3.5 Be punctual. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Manage your time effectively.</li> <li>➤ Identify the repercussions of not being punctual.</li> </ul> <p>7.3.6 Be attentive. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Ensure compliance with rest/fatigue requirements.</li> <li>➤ Maintain attentiveness during routine, non-routine and emergency situations.</li> <li>➤ Maintain appropriate level of concentration on current task.</li> <li>➤ Recognise and act upon indications of reduced or inadequate concentration levels.</li> <li>➤ Recognise and act upon intrusive distractions.</li> </ul> <p>7.3.7 Maintain the trust of all VTS stakeholders. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Take account of the importance of maintaining the trust of all VTS stakeholders.</li> </ul> <p>7.3.8 Ensure compliance with Health &amp; Safety at Work Regulations and be aware of your statutory duties as an employee.</p> <p>7.3.9 Ensure fitness and ability for the task.</p>	

<b>Unit 7</b>	<b>Personal attributes</b>	
<b>Element</b>	<b>7.4 Respond to the needs of team members</b>	
<b>Appropriate responses include:</b>	<ul style="list-style-type: none"> <li>➤ Providing fatigue relief.</li> <li>➤ Sharing the workload.</li> <li>➤ Requesting assistance from team members.</li> </ul>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>7.4.1 Respond promptly when a team member requires assistance, and act appropriately.</p> <p>7.4.2 Monitor the performance of team members when appropriate.</p> <p>7.4.3 Offer and provide assistance to team members when required.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable Health &amp; Safety at Work legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Theory</b></p> <ul style="list-style-type: none"> <li>➤ Team working.</li> <li>➤ Risk management.</li> <li>➤ Human factors.</li> <li>➤ Stress management.</li> <li>➤ Time management.</li> </ul>	

<b>Unit 7</b>	<b>Personal attributes</b>	
<b>Element</b>	<b>7.5 Ensure workload is within individual capabilities</b>	
<b>Personal capabilities may be affected by:</b>	<ul style="list-style-type: none"> <li>➤ Medical condition.</li> <li>➤ Medicines.</li> <li>➤ Fatigue.</li> <li>➤ Stress.</li> <li>➤ Shift work.</li> <li>➤ Substance abuse.</li> </ul>	
<b>What you must do:</b>		<b>What you need to know:</b>
<p>7.5.1 Carry out appropriate pre-task briefing.</p> <p>7.5.2 Monitor personal workload and recognise your limitations.</p> <p>7.5.3 Recognise the need for and promptly request assistance when appropriate.</p> <p>7.5.4 Communicate your needs clearly to other team members.</p> <p>7.5.5 Recognise and respond to seasonal/diurnal variations in task.</p> <p>7.5.6 Recognise and respond appropriately to deviations from normal task workload.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable Health &amp; Safety at Work legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Technical/theoretical</b></p> <ul style="list-style-type: none"> <li>➤ Team working.</li> <li>➤ Risk management.</li> <li>➤ Human factors.</li> <li>➤ Stress management.</li> <li>➤ Time management.</li> </ul>	

<b>Unit 7</b>	<b>Personal attributes</b>	
<b>Element</b>	<b>7.6 Improving own learning and performance</b>	
<b>Personal capabilities may be enhanced by:</b>	<ul style="list-style-type: none"> <li>➤ Identifying individual aims and aspirations.</li> <li>➤ Goal setting.</li> <li>➤ Time management.</li> </ul>	
<b>What you must do:</b>		<b>What you need to know:</b>
<p>7.6.1 Provide at least two examples of meeting the standard for 7.6.2, 7.6.3 and 7.6.4.</p> <p>7.6.2 Help set short-term targets with an appropriate person and plan how these will be met. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Provide accurate information to help set realistic targets for what you want to achieve.</li> <li>➤ Identify clear action points for each target.</li> <li>➤ Plan how you will use your time well to meet targets, including use of support and arrangements for reviewing your progress.</li> </ul> <p>7.6.3 Take responsibility for some decisions about your learning, using your plan and support from others, to help meet targets.</p> <p>Improve your performance by:</p> <ul style="list-style-type: none"> <li>✓ Studying a straightforward subject.</li> <li>✓ Learning through a straightforward practical activity.</li> </ul> <p>Evidence must show that you can:</p> <ul style="list-style-type: none"> <li>➤ Use your action points to help manage your time well and complete tasks, revising your plan when needed.</li> <li>➤ Identify when you need support and use this effectively to help you meet targets.</li> </ul>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Technical/theoretical</b></p> <ul style="list-style-type: none"> <li>➤ Portfolio development.</li> <li>➤ Continuous professional development.</li> <li>➤ Lifelong learning.</li> </ul> <p><b><i>In helping to set targets</i></b> you need to know how to:</p> <p>Work with an appropriate person (e.g. <i>supervisor, mentor, line manager, trainer, specialist</i>) to:</p> <ul style="list-style-type: none"> <li>➤ Provide accurate information to help set realistic targets that can be met in a few weeks or less: <ul style="list-style-type: none"> <li>✓ Give examples of what you have done before and what you want to achieve (e.g. <i>in your learning, personal life, work</i>).</li> <li>✓ Identify what might affect your chances of success (e.g. <i>time, cost, healthy and safety, motivation, other commitments</i>).</li> <li>✓ Identify clear action points for each target (e.g. <i>tasks you will do, people you will see</i>).</li> <li>✓ Plan how to use time well by setting deadlines for action points.</li> </ul> </li> </ul>	

What you must do (continued):	What you need to know:
<p>➤ Select and use different ways of learning to improve your performance, working for short periods without close supervision.</p> <p>7.6.4 Review progress with an appropriate person and provide evidence of your of your achievements, including how you have used learning from one task to meet the demands of a new task. Evidence must show you can:</p> <p>➤ Identify what you have learned, including what has gone well and what has gone less well.</p> <p>➤ Identify targets you have met and evidence of your achievements.</p> <p>➤ Identify ways to further improve your performance.</p>	<p>✓ Identify the support you will need (<i>e.g. teaching, coaching, guidance</i>) and how to get it, including arrangements for reviewing progress.</p> <p><b><i>In using your plan</i></b> you need to know how to:</p> <p>✓ Use your action points to help manage your time well (e.g. look at them regularly and think ahead about what you need to organise).</p> <p>✓ Revise your plan when needed (e.g. to deal with unexpected problems, tasks completed more quickly than expected).</p> <p>✓ Identify when support from others would be helpful and use this to help you meet targets (e.g. information about, trouble-shooting advice).</p> <p>✓ Select and use different ways of learning, working at times without close supervision, including:</p> <ul style="list-style-type: none"> <li>✓ Studying a straightforward subject (e.g. in teaching or training sessions, self-supported study such as reading and making notes).</li> <li>✓ Learning through straightforward practical activities (e.g. following demonstrations, finding out for yourself by doing tasks).</li> </ul> <p>✓ Use methods that suit different learning styles (e.g. by using pictures, words, listening, watching or doing something).</p> <p><b><i>In reviewing progress and achievements</i></b>, you need to know how to:</p> <p>Work with an appropriate person (e.g. <i>supervisor, mentor, line manager, trainer, specialist</i>) to:</p> <ul style="list-style-type: none"> <li>➤ Identify what you have learned (<i>e.g. knowledge of subjects, skills, including key skills, new ways of working, personal qualities, interests</i>).</li> <li>➤ Identify how you have learned (<i>e.g. materials used, learning styles, where you learned best</i>).</li> <li>➤ Provide information on what has gone well and what has gone less well.</li> <li>➤ Identify targets you have met (e.g. look through your action points, ask others who have seen your work, obtain test results).</li> </ul>

What you must do:	What you need to know (continued):
	<ul style="list-style-type: none"><li>➤ Identify evidence of your achievements (<i>e.g. pieces of work, statements from people who have seen your work, records, reports, photographs, awards</i>), including examples of how you have used your learning to meet new demands.</li><li>➤ Identify ways to further improve your performance (<i>e.g. quality of your work, the way you work</i>).</li></ul>

<b>Unit 7</b>	<b>Personal attributes</b>	
<b>Element</b>	<b>7.7 Problem solving</b>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>7.7.1 Provide at least two examples of meeting the standard for 7.7.2, 7.7.3 and 7.7.4.</p> <p>7.7.2 Identify a problem and come up with two options for solving it. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Identify the problem, accurately describing its main features and how to show success in solving it.</li> <li>➤ Come up with different ways of tackling the problem.</li> <li>➤ Decide which options have a realistic chance of success, using help from others when appropriate.</li> </ul> <p>7.7.3 Plan and try out at least one option for solving the problem, obtaining support and making changes to your plan when needed. Evidence must show that you can:</p> <ul style="list-style-type: none"> <li>➤ Confirm with an appropriate person the option you will try for solving the problem and plan how to carry it out.</li> <li>➤ Use your plan, organising the relevant tasks and making changes to your plan when needed when needed.</li> <li>➤ Obtain and effectively use any support needed.</li> </ul> <p>7.7.4 Check if the problem has been solved by applying given methods, describe results and explain your approach to problem solving. Evidence must show you can:</p> <ul style="list-style-type: none"> <li>➤ Check if the problem has been solved by accurately applying the methods you have been given.</li> </ul>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Technical/theoretical</b></p> <ul style="list-style-type: none"> <li>➤ Problem solving methodology.</li> <li>➤ Clarity and organisation of communication – oral and written.</li> <li>➤ Portfolio development.</li> <li>➤ Continuous professional development.</li> <li>➤ Lifelong learning.</li> </ul> <p><b><i>In identifying problems and options:</i></b></p> <ul style="list-style-type: none"> <li>➤ Identify when there is a problem and describe its main features (<i>e.g. focus on different parts of the problem, check if the problem changes at different times or places</i>).</li> <li>➤ Identify how you will know that the problem has been solved (<i>e.g. how will you tell if something is working well, or a service meets the STANDARDS expected</i>).</li> <li>➤ Come up with different ways of tackling the problem (<i>e.g. brainstorming ideas with others, by using written materials, pictures, methods involving numbers, by making a simple model</i>).</li> <li>➤ Decide which options have a realistic chance of success by: <ul style="list-style-type: none"> <li>✓ Identifying possible risks (<i>e.g. health and safety issues, obstacles, side-effects</i>) and other factors that may affect your approach (<i>e.g. time, resources, expertise needed</i>).</li> </ul> </li> </ul>	

What you must do:	What you need to know (continued):
<ul style="list-style-type: none"> <li>➤ Describe clearly the results, and explain the decisions you took at each stage of tackling the problem.</li> <li>➤ Identify the strengths and weaknesses of your approach to problem solving, and describe what you would do differently if you met a similar problem.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Decide and justify the option selected to solve the problem.</li> </ul> <p><b><i>In planning and implementing options:</i></b></p> <ul style="list-style-type: none"> <li>➤ Obtain the go-ahead for either your chosen option (<i>e.g. from your supervisor or line manager</i>) or, if necessary, an alternative option (<i>e.g. a set way of dealing with the problem</i>).</li> <li>➤ Plan what you will do (<i>e.g. the sequence of tasks, working methods, time, resources and help needed, how to get around possible obstacles</i>).</li> <li>➤ Organise and carry out tasks (<i>e.g. use your specialist knowledge, obtain resources, make best use of the time available, keep track of steps you take in tackling the problem</i>).</li> <li>➤ Make changes to your plan (<i>e.g. when you see a better method, need to respond to unforeseen difficulties, others show you how changes will help</i>).</li> <li>➤ Obtain and use support when you need it for tackling the problem (<i>e.g. from your supervisor, mentor, line manager, trainer, specialist, people affected by the problem</i>).</li> </ul> <p><b><i>In checking if problems have been solved:</i></b></p> <ul style="list-style-type: none"> <li>➤ Make sure you understand given methods for checking is a problem has been solved (<i>e.g. get clarification, watch a demonstration, practice</i>).</li> <li>➤ Apply these methods accurately (<i>e.g. test, observe, measure, sample, inspect, ask others</i>).</li> <li>➤ Describe the results of your checks (<i>e.g. draw conclusions about how well you solved each part of the problem</i>).</li> <li>➤ Explain the reasons for the decisions you took at each stage of the problem solving approach (<i>e.g. the reasons for your choice of options and methods of working, why you made the changes to your plan</i>).</li> <li>➤ Identify the strengths and weaknesses of your approach to problem solving at each stage (<i>e.g. whether you stayed with the limits of time and resources</i>).</li> <li>➤ Describe what you would do differently if you met a similar problem.</li> </ul>

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<b>Unit 8</b>	<b>Respond to emergency situations</b>
<b>Elements</b>	<p><b>8.1 Comply with local, national and international regulations</b></p> <p><b>8.2 Prioritise and respond to incidents</b></p> <p><b>8.3 Use contingency plans</b></p> <p><b>8.4 Co-ordinate with and support allied services</b></p> <p><b>8.5 Maintain a safe waterway throughout emergency situations</b></p> <p><b>8.6 Respond effectively to internal emergencies within the VTS Centre</b></p>
<b>Scope of this unit</b>	
<p><b>Element 8.1 Comply with local, national and international regulations</b> This element concerns the ability of VTS Operators to be aware of and comply with local, national and international regulations relevant to emergency situations in the VTS area.</p> <p><b>Element 8.2 Prioritise and respond to incidents</b> This element concerns the ability of VTS Operators to prioritise and respond promptly to internal / external emergency situations in the VTS area.</p> <p><b>Element 8.3 Use contingency plans</b> This element concerns the ability of VTS Operators to correctly select and use the appropriate contingency plan in the event of an emergency.</p> <p><b>Element 8.4 Co-ordinate with and support allied services</b> This element concerns the ability of VTS Operators to co-ordinate with and support allied services during emergency situations in the VTS area.</p> <p><b>Element 8.5 Maintain a safe waterway throughout emergency situations</b> This element concerns the ability of VTS Operators to maintain a safe waterway throughout emergency situations.</p> <p><b>Element 8.6 Respond effectively to internal emergencies within the VTS Centre</b> This element concerns the ability of VTS Operators to respond to emergencies within the VTS Centre demanding the continuity or resumption of services if interrupted by incidents that impact the safety and security of the personnel and/or operation.</p>	

<b>Unit 8</b>	<b>Respond to emergency situations</b>	
<b>Element</b>	<b>8.1 Comply with local, national and international regulations</b>	
<b>Equipment in use and source information available</b>	<p><b>Equipment:</b> Mandatory – VHF, manual plotting facility, telephone, facsimile. Optional – Marine radar, Marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV.</p> <p><b>Sources of information:</b> Watch hand over briefing. Visual lookout. Reports from vessels. Information obtained from vessels. Information obtained from shipping agents and others. Emergency / contingency plans. International Aeronautical and Maritime Search and Rescue Manual</p>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>8.1.1 Recognise the various types of emergencies that may arise in a VTS area. These may include, but not be limited to the following:</p> <ul style="list-style-type: none"> <li>➤ Collision.</li> <li>➤ Grounding.</li> <li>➤ Environmental Pollution.</li> <li>➤ Fire.</li> <li>➤ Emergency involving hazardous cargoes.</li> <li>➤ SAR incidents.</li> <li>➤ Other special circumstances.</li> </ul> <p>8.1.2 Know the significant local, national and international regulations applicable to emergency situations in a VTS Area.</p> <p>8.1.3 Know the regulations governing transit of vessels in special circumstances.</p> <p>8.1.4 Know your responsibilities and your authority to act in an emergency situation.</p> <p>8.1.5 Know the chain of command for emergency situations.</p> <p>8.1.6 Know the supporting and allied services that might be available.</p> <p>8.1.7 Identify the assets that might be available for deployment.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Standard Operating Procedures.</li> <li>➤ Record and storage systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication/reporting in the workplace.</li> </ul>	

<b>Unit 8</b>	<b>Respond to emergency situations</b>	
<b>Element</b>	<b>8.2 Prioritise and respond to incidents</b>	
<b>Equipment in use and source information available</b>	<p><b>Equipment:</b> Mandatory – VHF, manual plotting facility, telephone, facsimile. Optional – Marine radar, Marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV.</p> <p><b>Sources of information:</b> Watch hand over briefing. Visual lookout. Reports from vessels. Information obtained from vessels. Information obtained from shipping agents and others. Emergency / contingency plans.</p>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>8.2.1 Correctly ascertain the nature of incident using all available means to collect and evaluate essential and relevant data.</p> <p>8.2.2 Commence alerting procedures.</p> <p>8.2.3 Establish and maintain communications with concerned individuals or units if possible.</p> <p>8.2.4 Broadcast navigational warnings.</p> <p>8.2.5 Maintain a record of activities relating to emergency situations.</p> <p>8.2.6 Identify the objective of recording activities during emergency situations.</p> <p>8.2.7 Follow standard operating procedures to record essential and reliable data during emergency situations.</p> <p>8.2.8 Keep the recorded information in a safe and secure environment in accordance with standard operating procedures.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul>	

<b>Unit 8</b>	<b>Respond to emergency situations</b>	
<b>Element</b>	<b>8.3 Use contingency plans</b>	
<b>Equipment in use and source information available</b>	<p><b>Equipment:</b> Mandatory – VHF, manual plotting facility, telephone, facsimile. Optional – Marine radar, Marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV.</p> <p><b>Sources of information:</b></p> <ul style="list-style-type: none"> <li>➤ Watch hand over briefing.</li> <li>➤ Visual lookout.</li> <li>➤ Reports from vessels.</li> <li>➤ Information obtained from vessels.</li> <li>➤ Information obtained from shipping agents and others.</li> <li>➤ Emergency / contingency plans.</li> </ul>	
<b>What you must do:</b>		<b>What you need to know:</b>
8.3.1 Identify individual(s) who have the authority to prepare, implement, issue and update checklists.	8.3.2 Select the correct contingency plan for the emergency.	8.3.3 Implement the contingency plan correctly.
8.3.4 Use checklists appropriately.		
		<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Mandatory – Principles, controls and operations of VHF, telephone, facsimile.</li> <li>➤ Optional – Principles, controls and operations of marine radar, marine radar + tracking system, VTS radar + tracking system, CCTV.</li> </ul>

<b>Unit 8</b>	<b>Respond to emergency situations</b>	
<b>Element</b>	<b>8.4 Co-ordinate with and support allied services</b>	
<b>Equipment in use and source information available</b>	<p><b>Equipment:</b></p> <p>Mandatory – VHF, manual plotting facility, telephone, facsimile. Optional – Marine radar, Marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV.</p> <p><b>Sources of information:</b></p> <ul style="list-style-type: none"> <li>➤ Watch hand over briefing.</li> <li>➤ Visual lookout.</li> <li>➤ Reports from vessels.</li> <li>➤ Information obtained from vessels.</li> <li>➤ Information obtained from shipping agents and others.</li> <li>➤ Emergency / contingency plans.</li> </ul>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>8.4.1 Maintain communications with emergency response units during emergency situations.</p> <p>8.4.2 Maintain communications with vessel traffic during emergency situations.</p> <p>8.4.3 Maintain communications with allied services during emergency situations.</p> <p>8.4.4 Update situation reports as appropriate.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Mandatory – Principles, controls and operations of VHF, telephone, facsimile.</li> <li>➤ Optional – Principles, controls and operations of marine radar, marine radar + tracking system, VTS radar + tracking system, CCTV.</li> </ul>	

<b>Unit 8</b>	<b>Respond to emergency situations</b>	
<b>Element</b>	<b>8.5 Maintain a safe waterway throughout emergency situations</b>	
<b>Equipment in use and source information available</b>	<p><b>Equipment:</b> Mandatory – VHF, manual plotting facility, telephone, facsimile. Optional – Marine radar, Marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV.</p> <p><b>Sources of information:</b></p> <ul style="list-style-type: none"> <li>➤ Watch hand over briefing.</li> <li>➤ Visual lookout.</li> <li>➤ Reports from vessels.</li> <li>➤ Information obtained from vessels.</li> <li>➤ Information obtained from shipping agents and others.</li> <li>➤ Emergency / contingency plans.</li> </ul>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>8.5.1 Maintain a traffic image throughout the emergency situation.</p> <p>8.5.2 Maintain a safe waterway throughout the emergency situation in accordance with standard operating procedures and contingency plans. Maintaining a safe waterway will require that you maintain traffic management and monitoring procedures that could involve but not be limited to the following:</p> <ul style="list-style-type: none"> <li>➤ Alternative routing arrangements.</li> <li>➤ Diversionary procedures (traffic in immediate incident area).</li> <li>➤ Anchorage areas.</li> <li>➤ Introduction of emergency speed restrictions.</li> <li>➤ Emergency alterations to VTS Sailing Plans and Passage Plans.</li> <li>➤ Exclusion zones.</li> <li>➤ Safety control zones.</li> </ul> <p>8.5.3 Inform adjacent VTS Centres / Statutory Harbour Authorities, if appropriate, in accordance with standard operational procedures.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Mandatory – Principles, controls and operations of VHF, telephone, facsimile.</li> <li>➤ Optional – Principles, controls and operations of marine radar, marine radar + tracking system, VTS radar + tracking system, CCTV.</li> </ul>	

<b>Unit 8</b>	<b>Respond to emergency situations</b>	
<b>Element</b>	<b>8.6 Respond to internal emergencies within the VTS Centre.</b>	
<b>Equipment in use and source information available</b>	<p><b>Equipment:</b> Mandatory – VHF, manual plotting facility, telephone, facsimile. Optional – Marine radar, Marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV.</p> <p><b>Sources of information:</b></p> <ul style="list-style-type: none"> <li>➤ Reports from persons in authority.</li> <li>➤ Reports from vessels.</li> <li>➤ Information obtained from vessels.</li> <li>➤ Information obtained from shipping agents and others.</li> <li>➤ Emergency / contingency plans.</li> </ul>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>8.6.1 Observe safety and security procedures and regulations.</p> <p>8.6.2 Relocate and resume operations as required by your standard operating procedures, with minimal loss of services and with as short an interruption as possible in response to events such as, but not limited to:</p> <ul style="list-style-type: none"> <li>➤ Bomb threats.</li> <li>➤ Fire.</li> <li>➤ Building evacuation.</li> <li>➤ Flood.</li> <li>➤ Prolonged loss of power or other essential services.</li> </ul>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Mandatory – Principles, controls and operations of mobile VHF, telephone, computers.</li> <li>➤ Optional – Principles, controls and operations of manual tracking systems.</li> </ul>	

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<b>Unit 9</b>	<b>Use radar and tracking systems safely</b>
<b>Elements</b>	<p><b>9.1 Monitor the serviceability of the equipment</b></p> <p><b>9.2 Use marine radar safely</b></p> <p><b>9.3 Use automatic tracking systems safely</b></p> <p><b>9.4 Use VTS radar and tracking systems safely</b></p>
<b>Scope of this unit</b>	
<p><b>Element 9.1 Monitor the serviceability of the equipment</b> This element concerns the ability of VTS Operators to determine if the equipment is operating correctly and to determine if there are any faults, and how to deal with them.</p> <p><b>Element 9.2 Use marine radar safely</b> This element concerns the ability of VTS Operators to be competent in the use of marine radar at an operational level.</p> <p><b>Element 9.3 Use automatic tracking systems safely</b> This element concerns the ability of VTS Operators to be competent in the use of automatic tracking systems at an operational level.</p> <p><b>Element 9.4 Use VTS radar and tracking systems safely</b> This element concerns the ability of VTS Operators to be competent in the use of VTS radar and tracking systems at an operational level.</p>	

<b>Unit 9</b>	<b>Use radar and tracking systems safely</b>	
<b>Element</b>	<b>9.1 Monitor the serviceability of the equipment</b>	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>9.1.1 Continually check the alarms and indications whilst using the equipment.</p> <p>9.1.2 Check and respond appropriately to documentation relating to equipment status.</p> <p>9.1.3 Continually monitor the operational and functional integrity of the equipment.</p> <p>9.1.4 Take prompt and appropriate reporting action with respect to observed defects and failures.</p> <p>9.1.5 Follow-up reports to ensure equipment is returned to service.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Theory of operation of Marine Radar, ARPA and VTS Radar and tracking system.</li> <li>➤ Practical use of Marine Radar, ARPA and VTS Radar and tracking system.</li> </ul>	

<b>Unit 9</b>	<b>Use radar and tracking systems safely</b>	
<b>Element</b>	<b>9.2 Use marine radar safely</b>	
<b>Resources and aids</b>	Marine Radar	
<b>What you must do:</b>		<b>What you need to know:</b>
<p>9.2.1 Hold valid Radar Observer's Certificate or equivalent approved by the Competent Authority for VTS.</p> <p>9.2.2 Carry out visual safety checks of scanner prior to powering on radar.</p> <p>9.2.3 Carry out safety checks before powering on radar to ensure no personnel are working in the vicinity of the radar system.</p> <p>9.2.4 Carry out safety checks prior to powering on radar to ensure that no permit to work is issued in the vicinity of the radar system.</p> <p>9.2.5 Switch Radar components "on" and "off".</p> <p>9.2.6 Set brilliance control for optimum performance by taking account of the ambient light conditions.</p> <p>9.2.7 Set gain control for optimum performance.</p> <p>9.2.8 Set tuning (if required) to peak performance for maximum traffic image.</p> <p>9.2.9 Set anti sea clutter control (if required) to suit prevailing circumstances.</p> <p>9.2.10 Set anti-rain clutter control (if required) to suit prevailing circumstances.</p> <p>9.2.11 Carry out Radar performance monitoring in accordance with operations procedure.</p> <p>9.2.12 Take account of the limitations and anomalies of radar equipment in use.</p> <p>9.2.13 Select appropriate radar range scale.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Standard operating procedures.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Technical</b></p> <p>Theory of principles and operation of Marine Radar.</p> <p>Limitations of Marine Radar:</p> <ul style="list-style-type: none"> <li>➤ Factors affecting radar detection.</li> <li>➤ Factors affecting interpretation.</li> </ul> <p>Practical use of Marine Radar.</p>	

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<b>What you must do (continued):</b>	<b>What you need to know:</b>
9.2.14 Confirm error of variable range marker (VRM), take account of the error and obtain target range. 9.2.15 Confirm error of the electronic bearing line (EBL), take account of the error and obtain target bearing. 9.2.16 Confirm blind sectors and anomalies of radar set in use. 9.2.17 Consider the effect of correlation/interference rejection systems on radar detection.	

<b>Unit 9</b>	<b>Use radar and tracking systems safely</b>	
<b>Element</b>	<b>9.3 Use automatic tracking systems safely</b>	
<b>Resources and aids</b>	Automatic tracking systems i.e. Automatic Radar Plotting Aid (ARPA)	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>9.3.1 Hold valid Automatic Radar Plotting Aid (ARPA) Course Certificate or equivalent approved by the Competent Authority for VTS.</p> <p>9.3.2 Take account of the limitations of the automatic tracking system in use.</p> <p>9.3.3 Use ARPA to manually acquire target.</p> <p>9.3.4 Enable automatic target acquisition by ARPA.</p> <p>9.3.5 Allow at least 3 minutes before interpreting ARPA data.</p> <p>9.3.6 Correctly interpret ARPA information.</p> <p>9.3.7 Correctly interpret target vectors.</p> <p>9.3.8 Correctly interpret target history (trail).</p> <p>9.3.9 Correctly set up guard zone as required.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Technical</b></p> <p>Theory of principles, limitations and operation:</p> <ul style="list-style-type: none"> <li>➤ Manual plotting.</li> <li>➤ Manual tracking.</li> <li>➤ Automatic tracking systems (ARPA).</li> </ul> <p>Practical use of Automatic tracking systems (ARPA).</p> <p>Operations Manuals.</p>	

<b>Unit 9</b>	<b>Use radar and tracking systems safely</b>	
<b>Element</b>	<b>9.4 Use VTS radar and tracking systems safely</b>	
<b>Resources and aids</b>	VTS Radar and tracking system	
<b>What you must do:</b>	<b>What you need to know:</b>	
<p>9.4.1 Hold valid VTS Radar and Tracking System Training Course Certificate or acceptable equivalent approved by your Statutory Harbour Authority / VTS Authority.</p> <p>9.4.2 Take account of the operational limitations of the VTS Radar and tracking system.</p> <p>9.4.3 Set brilliance control for optimum performance by taking account of the ambient light conditions.</p> <p>9.4.4 Carry out equipment performance monitoring in accordance with operation procedures/manual.</p> <p>9.4.5 Correctly tag all participating and relevant traffic in the VTS area.</p> <p>9.4.6 Promptly acquire all new traffic within and entering the VTS area.</p> <p>9.4.7 Identify target swaps promptly.</p> <p>9.4.8 Correct target swaps promptly.</p> <p>9.4.9 Obtain target data and use it appropriately.</p> <p>9.4.10 Obtain marker data and use it appropriately.</p> <p>9.4.11 Activate and correctly use the tracking system tools/aids as appropriate. These could include but not be limited to automatic detection and alerting systems.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Technical</b></p> <ul style="list-style-type: none"> <li>➤ Theory of principles, limitations and operation of VTS Radar and tracking systems.</li> <li>➤ Information management systems.</li> <li>➤ Limitations of VTS Radar and tracking systems.</li> <li>➤ Practical use of VTS Radar and tracking systems.</li> <li>➤ Use of AIS for tracking.</li> <li>➤ Operations Manuals.</li> </ul>	

<b>Unit 10</b>	<b>Provide Vessel Traffic Service</b>
<b>Elements</b>	<b>10.1 Provide an Information Service</b> <b>10.2 Provide Navigational Assistance Service</b> <b>10.3 Provide Traffic Organisation Service</b>
<b>Scope of this unit</b>	
<p><b>Element 10.1 Provide an Information Service</b></p> <p>This element concerns the ability of VTS Operators to provide timely and essential information to support on-board navigational decision-making.</p> <p><b>Element 10.2 Provide Navigational Assistance Service</b></p> <p>This element concerns the ability of VTS Operators to provide a service that aims to assist on-board navigational decision-making and to monitor its effects, especially in difficult navigational or meteorological circumstance or in case of defect or deficiencies.</p> <p><b>Element 10.3 Provide Traffic Organisation Service</b></p> <p>This element concerns the ability of VTS Operators to provide a service that aims to prevent the development of dangerous maritime traffic situations and to provide for the safe and efficient movement of vessel traffic within the VTS Area.</p>	

<b>Unit 10</b>	<b>Provide Vessel Traffic Service</b>
<b>Element</b>	<b>10.1 Provide an Information Service</b>
<b><i>Resources and aids</i></b>	<p><b>Resources:</b>  Paper and/or electronic charts.  Chart plotting instruments: parallel rulers, compass, and dividers.  Stationery: Chart pencils, erasers.  Nautical publications: Admiralty List of Lights, Admiralty List of Radio Signals, Admiralty Tide and Current Tables, Notices to Mariners, Symbols and Abbreviations used on Admiralty Charts (Chart 5011).  STANDARDS Operating Procedures, Operational Guidelines, Standing Orders.</p> <p><b>Equipment:</b>  Mandatory – VHF, manual plotting facility, telephone, facsimile.  Optional – Marine radar, Marine radar + tracking system, VTS radar + tracking system, ENC / GIS, VHF / DF, AIS, CCTV.</p> <p><b>Sources of information:</b>  Watch hand over briefing.  Visual lookout.  Reports from vessels.  Information obtained from stakeholders.  Relevant meteorological and hydrological information from sensors and organisations.</p>

<b>What you must do:</b>	<b>What you need to know:</b>
<p>10.1.1 Obtain briefing on significant vessel traffic in the VTS area before taking over watch.</p> <p>10.1.2 Develop and maintain a dynamic traffic image using all available aids and resources.</p> <p>10.1.3 Have authorisation from the VTS Authority to provide an Information Service.</p> <p>10.1.4 Provide each ship with a traffic image applicable to it.</p> <p>10.1.5 Provide the service as broadcasts of information at fixed times or when deemed necessary by the VTS Authority or at the request of a vessel.</p> <p>10.1.6 Use all available means to ensure that essential and relevant information becomes available to participating vessels in time for on-board navigational decision-making.</p> <p>10.1.7 Promptly recognise developing dangerous situations and take appropriate action.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Information Service may include for example :</b></p> <ul style="list-style-type: none"> <li>➤ Reports on the position, identity and intentions of other traffic.</li> <li>➤ Waterway conditions;</li> <li>➤ Weather.</li> <li>➤ Navigational hazards.</li> <li>➤ Any other factors that may influence the vessel's transit.</li> </ul>

<b>Unit 10</b>	<b>Provide Vessel Traffic Service</b>	
<b>Element</b>	<b>10.2 Provide Navigational Assistance Service</b>	
<b>Resources and aids</b>	<p><b>Resources:</b>  Paper and/or electronic charts.  Chart plotting instruments: parallel rulers, compass, and dividers.  Stationery: Chart pencils, erasers.  Nautical publications: Admiralty List of Lights, Admiralty List of Radio Signals, Admiralty Tide and Current Tables, Notices to Mariners, Symbols and Abbreviations used on Admiralty Charts (Chart 5011).  Standard operating procedures, Operational Guidelines, Standing Orders.</p> <p><b>Equipment:</b>  Mandatory – VHF, Marine radar + tracking system, ENC / GIS, telephone, facsimile.  Optional – VTS radar + tracking system, manual plotting facility, VHF / DF, AIS, CCTV.</p> <p><b>Sources of information:</b>  Watch hand over briefing.  Visual lookout.  Reports from vessels.  Information obtained from stakeholders.  Relevant meteorological and hydrological information from sensors and organisations.</p>	
<b>What you must do:</b>		<b>What you need to know:</b>
10.2.1	Obtain briefing on significant vessel traffic in the VTS area before taking over watch.	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation including requirements of the Pilotage Act 1987.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> </ul>
10.2.2	Develop and maintain a dynamic traffic image using all available aids and resources.	
10.2.3	Have authorisation from the VTS Authority before you provide a Contributory NAS.	
10.2.4	Have authorisation from the VTS Authority before you provide a Participatory NAS.	
10.2.5	Distinguish the difference between Contributory NAS and a Participatory NAS.	
10.2.6	Provide the service only on specified occasions and under clearly defined circumstances.	

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<p>10.2.7 Provide the service for reasons of safety at the specific request of a vessel or by the VTS Authority when deemed necessary.</p> <p>10.2.8 Know whether the service you are providing is a Contributory NAS or a Participatory NAS.</p> <p>10.2.9 Consider using a discrete frequency if required by your STANDARDS operating procedures or by the special circumstances of the case.</p> <p>10.2.10 Consider the use of a backup frequency and a lost communications procedure whenever providing NAS.</p> <p>10.2.11 Consider increasing traffic restrictions.</p> <p>10.2.12 Ensure that the type, beginning and end of NAS is clearly stated by you or the vessel and that you receive/give acknowledgement from/to the vessel.</p> <p>10.2.13 Promptly warn vessel traffic of developing dangerous situation.</p>	<p>➤ Lines and methods of communication /reporting in the workplace.</p> <p><b>Navigational Assistance Service (NAS)</b> is intended to assist in the navigational decision making process on board and to monitor its effects.</p> <p>NAS is particularly relevant to:</p> <ul style="list-style-type: none"> <li>➤ Difficult navigational circumstances.</li> <li>➤ Difficult meteorological conditions.</li> <li>➤ Vessel defects or deficiencies.</li> </ul> <p><b>Contributory NAS</b> involves the VTS Operator providing factual <i>navigational information</i> to the bridge team to assist the on-board decision making process, either in response to a specific request or when the VTS perceives that the information could be of use.</p> <p><b>Participatory NAS</b> involves the VTS Operator providing <i>navigational advice</i> to the bridge team and the VTS can become involved in the on-board decision making process. Through the exchange of information between vessel and VTS, an agreed course of action may emerge.</p>
<p>10.2.14 Promptly warn vessel traffic of grave or imminent danger.</p> <p>10.2.15 Provide a Contributory NAS that includes information on :</p> <ul style="list-style-type: none"> <li>➤ Courses and speeds made good.</li> <li>➤ Positions relative to fairway axis and waypoints.</li> <li>➤ Positions, identities and intentions of surrounding traffic.</li> <li>➤ Warnings of dangers.</li> </ul> <p>10.2.16 Be aware that participatory NAS is provided on specific request of a vessel or when perceived necessary by the VTS Authority, in the interests of safety</p> <p>10.2.17 Consider your workload during Participatory NAS, including other responsibilities</p>	

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10.2.18	and activities, and the number of vessels being monitored or advised. Ensure that the recommendation you give when providing a Participatory NAS is result orientated and does not include specific instruction on course to steer and speed through the water.	
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<b>Unit 10</b>	<b>Provide Vessel Traffic Service</b>
<b>Element</b>	<b>10.3 Provide Traffic Organisation Service</b>
<b><i>Resources and aids</i></b>	<p><b>Resources:</b>  Paper and/or electronic charts.  Chart plotting instruments: parallel rulers, compass, and dividers.  Stationery: Chart pencils, erasers.  Nautical publications: Admiralty List of Lights, Admiralty List of Radio Signals, Admiralty Tide and Current Tables, Notices to Mariners.  Standard operating procedures, Operational Guidelines, Standing Orders.</p> <p><b>Equipment:</b>  Mandatory – VHF, VTS radar + tracking system, ENC / GIS, telephone, facsimile.  Optional – Marine radar + tracking system, manual plotting facility, ENC / GIS, VHF / DF, AIS, CCTV.</p> <p><b>Sources of information:</b>  Watch hand over briefing.  Visual lookout.  Reports from vessels.  Information obtained from stakeholders.  Relevant meteorological and hydrological information from sensors and organisations.</p>

<b>What you must do:</b>	<b>What you need to know:</b>
<p>10.3.1 Obtain briefing on significant vessel traffic in the VTS area before taking over watch.</p> <p>10.3.2 Develop and maintain a dynamic traffic image using all available aids and resources.</p> <p>10.3.3 Have authorisation from the VTS Authority before you provide a Traffic Organisation Service.</p> <p>10.3.4 Provide a Traffic Organisation Service to prevent the development of dangerous maritime traffic situations and to improve the safe and efficient movement of vessel traffic within the VTS Area.</p> <p>10.3.5 Use all available means to provide all significant vessel traffic in the VTS area with a domain of safety. You may achieve this by the application of a combination of:</p> <ul style="list-style-type: none"> <li>• Rules &amp; Regulations</li> <li>• Geographical Division</li> <li>• Time Separation</li> <li>• Distance Separation</li> </ul> <p>10.3.6 Ensure that instructions and advice you give as part of a Traffic Organisation Service are result orientated, leaving the details of the execution to the vessel.</p> <p>10.3.7 Monitor the traffic and enforce adherence to governing rules and regulations.</p> <p>10.3.8 Identify developing dangerous situations and take early and effective action in accordance with standard operating procedures.</p> <p>10.3.9 Promptly identify traffic infringements.</p> <p>10.3.10 Action traffic infringements in compliance with standard operating procedures.</p>	<p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>➤ Hazards and risks of the workplace affecting people and the environment.</li> <li>➤ How to make and apply decisions based on the assessment of risk.</li> <li>➤ How to apply practices that maximise the health, safety and welfare of yourself and others in the workplace.</li> </ul> <p><b>Organisational</b></p> <ul style="list-style-type: none"> <li>➤ Applicable legislation.</li> <li>➤ Record systems and their use.</li> <li>➤ Sources and availability of information.</li> <li>➤ Job description/specification.</li> </ul> <p><b>Personal and Interpersonal</b></p> <ul style="list-style-type: none"> <li>➤ How to communicate clearly and effectively with the range of people involved.</li> <li>➤ Lines and methods of communication /reporting in the workplace.</li> </ul> <p><b>Traffic Organisation Service</b> is concerned with, for example :</p> <ul style="list-style-type: none"> <li>➤ Forward planning of vessel movements.</li> <li>➤ Congestion and dangerous situations.</li> <li>➤ The movement of special transports.</li> <li>➤ Traffic clearance systems.</li> <li>➤ VTS sailing plans.</li> <li>➤ Routes to be followed.</li> <li>➤ Adherence to governing rules and regulations.</li> </ul>

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<b>What you must do (continued):</b>	<b>What you need to know:</b>
10.3.11 Take early and effective action to facilitate the safe and efficient movement of vessel traffic within the VTS Area in support of commercial operations in accordance with standard operating procedures.	

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## APPENDIX 1

### QCA Documents and Guidelines Referenced

List of Documents and Guidelines published by the Qualifications and Curriculum Authority (QCA) consulted and referenced in developing the NOS for VTS Operators.

1. Developing national occupational standards for NVQs and SVQs, 1999, QCA, London, QCA, Ref: QCA/99/397
2. Developing national occupational standards: signposting key and core skills, 2000, QCA, London, QCA, Ref: QCA/99/519
3. Developing national occupational standards: guidance on including ethical, creative and value based characteristics, 2000, QCA, London, QCA Ref: QCA/99/521
4. Case studies of good practice in the tailoring of national occupational standards, 2000, QCA, London, QCA Ref: QCA/99/529
5. The key skills qualifications specifications and guidance *communication, application of number and information technology*, 2002, QCA, London, (ISBN 1 8538 494 X)
6. Guidance on the wider key skills *working with others, improving own learning and performance and problem solving*, 2001, QCA, London, (ISBN 1 85838 480X)