When is a VTS not a VTS?

by Captain Terry Hughes FRIN FNI

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Development of Vessel Traffic Services

In the summer of 1946 the British Admiralty, in conjunction with the Mersey Docks and Harbour Board, carried out experiments with naval radar equipment set up ashore at Liverpool. The demonstration confirmed the potential usefulness of shore-based radar. Similar experiments were carried out at Southampton, Halifax (Nova Scotia), Le Havre (France) and Long Beach (USA).

It is little known that the world's first harbour control radar was actually installed at the end of Victoria Pier, Douglas, Isle of Man. Air Vice-Marshall Sir Geoffrey Rhodes Bromet, KBE CB DSO who was Lieutenant Governor of the Island at the time, inaugurated it on 27 February 1948. The system was manufactured and installed by Cossor Radar Ltd.

In the same year, the Sperry Gyroscope Company together with Cossor installed the world's first specially designed port radar system at the Port of Liverpool. The First Sea Lord, Admiral Sir John HD Cunningham GCB MVO, inaugurated it on 27 July. Sir Thomas AL Brocklebank, Bart., Chairman of the Mersey Docks and Harbour Board, had taken considerable interest in the radar project from its original conception. As a ship owner he was particularly interested in the safety and quick turn-round of his ships. The delay of one hour could easily have extended to the loss of a tide, which in those days would have cost an average vessel the huge sum of £400. Such a system put Liverpool into the record books as being the pioneer of European Vessel Traffic Services (VTS).

Other countries quickly followed using a single radar system and a radio for communicating to vessels. At this time commercial radar, which made it possible under almost all weather conditions to observe vessel traffic from the shore, was comparatively new. In combination with radio, a traffic surveillance system was achieved and real time information exchange between the shore and ships became possible.

Current Legislation

It was not until 1968, however, that the Inter Governmental Maritime Organization (IMCO) adopted Resolution, A.158(ES.IV), '_Recommendation On Port Advisory Services_', subsequently followed by Resolution A.587(14) in 1985, '_Guidelines for Vessel Traffic Services_' and Resolution A.857(20), '_Guidelines for Vessel Traffic Services_', adopted by the International Maritime Organization (IMO) on 27 November 1997.

So here we are 40 plus years later with Vessel Traffic Services (VTS) now having international approval under SOLAS Chapter V Regulation 12. However, it is the last 10 years or so that has made the difference. In 1998 the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) published their long awaited '_Recommendation (V103) on Standards for Training and Certification of VTS Personnel_'. This was quickly followed by a series of Model Courses covering the training qualifications for VTS Operator, VTS Supervisor, OJT (On the Job Training) Instructor and OJT itself. They have also published guidelines and recommendations on Accreditation, Simulation, Implementation and Procedures. To have the Recommendation on VTS training together with the various Model Courses and Guidelines published and internationally accepted in such a short time is a credit to the IALA VTS Committee and surely miraculous for the shipping industry, where the approval of legislation seems to drag on for ages.

IMO Resolution A.857(20) is associated with SOLAS chapter V Regulation 12 and sets out the objectives of a VTS, outlines the responsibilities and liability of Governments involved and gives guidance for planning and implementing a VTS as well as recruiting and training of VTS Operators. SOLAS Regulation 12 states that: "*Contracting Governments planning and implementing VTS shall, wherever possible, follow the guidelines developed by the Organization. The use of a VTS may only be made mandatory in sea areas within the territorial seas of a coastal state.*" The last sentence clearly states that a VTS can only be established within the territorial waters of a particular Contracting Government's country, that is, not in international waters. This becomes very confusing for Masters when a Ship Reporting System (SRS) is operated from a VTS centre and uses '*VTS*' in its call sign.

At the same IMO assembly session, Resolution A.851(20), '*General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants*' was also adopted. This is associated with SOLAS V Regulation 11, which states that, "*a ship reporting system, when adopted and implemented in accordance with the guidelines and criteria developed by the Organization pursuant to this regulation, shall be used by all ships, or certain categories of ships or ships carrying certain cargoes in accordance with the provisions of each system so adopted.*" It also states that, "*ship reporting systems not submitted to the Organization for adoption do not necessarily need to comply with this regulation. However, Governments implementing such systems are encouraged to follow, wherever possible, the guidelines and criteria developed by the Organization.*" This means that when vessels are transiting an IMO adopted SRS they should abide by the regulatory system for the SRS in question. If the SRS is a voluntary system, that is not adopted by IMO, the authority concerned should endeavour to follow the guidelines thus maintaining a common performance standard.

Another important Convention is UNCLOS (United Nations Convention on the Law of the Sea). This international law, comprising over 200 pages, defines sovereign jurisdiction and freedom of action in key sea areas and most important the need for increased protection of the marine environment. Article 21 of this Convention is extremely important for coastal states, which have a high degree of vessel traffic transiting through their waters where there is a SRS. This Article provides powers to the coastal states enabling them to adopt laws and regulations to ensure the protection of the environment in general and the safety of navigation as well as the regulation of maritime traffic in particular. Vessel traffic can be regulated passively by the utilisation of Traffic Separation Schemes (TSS), by interaction with the centre from which operations are being managed or both. Even though foreign ships can exercise their right of innocent passage through the territorial sea they should still comply with all such laws and regulations and all generally accepted international regulations relating to the prevention of collisions at sea.

Finally, a Convention dating back to 1936, is the Montreux Convention, which is unique to Turkey. Article 2 states that, "i*n time of peace, merchant vessels shall enjoy complete freedom of passage and navigation in the [Turkish] Straits, by day and by night, under any flag with any kind of cargo.*" This Convention did not make any provision for the regulation of shipping for the purposes of safety and environmental protection. However, in 1994 the Turkish government adopted new Maritime Traffic Regulations for the Turkish Straits and the Marmara Region. This introduced a new regulatory regime in order to ensure the safety of navigation, life and property and to protect the environment in the region but without violating the Montreux principle of free passage. The IMO adopted TSS, the Maritime Traffic Regulations for

the Turkish Straits as well as the Turkish Straits VTS have all contributed to a significant improvement in safety of navigation and protection of the local and natural environment.

Competent Harbour Authorities and the VTS Guidelines

The IMO guidelines on VTS state that, *"The competent authority is the authority made responsible, in whole or in part, by the Government for the safety, including environmental safety and efficiency of the vessel traffic and the protection of the environment*." *"The VTS Authority is the Authority with responsibility for the management, operations and co-ordination of the VTS, the interaction with participating vessels and the safe and effective provision of the service*."

Generally speaking, the Competent Authority of a Coastal State has the responsibility for the safety of navigation around the coastline of its jurisdiction. That responsibility is often delegated to a VTS or other Authority, which in turn is responsible for managing the coastline in the area or areas concerned. If the area is within territorial waters, and a risk assessment has determined that the volume of traffic or the degree of risk justifies such services, then a VTS can be established. It is important to note that, at present a VTS may only be made mandatory in sea areas within the territorial seas of a coastal State. If the area is in international waters, such as Straits for example, a Reporting System can be established and be subsequently adopted by the IMO, (Resolution A.851(20)).

"*The Government or Competent Authority should ensure that the VTS Authority is provided with sufficient staff, appropriately qualified, suitably trained and capable of performing the tasks required, taking into consideration the type and level of services to be provided and current IMO Guidelines on the recruitment and training of VTS operators.* "*A VTS Operator is an appropriately qualified person performing one or more tasks contributing to the services of the VTS*." Since the adoption of Resolution A857(20), IALA have published the internationally accepted IALA Model Courses for VTS personnel. MSC Circ.1065 brings attention to all the IALA V103 Model Courses for training and qualifying VTS Operators (VTSOs).

The IMO definition of VTS in Resolution A.857(20) states that, "*Vessel traffic service (VTS) - 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 to respond to traffic situations developing in the VTS area*". So when a VTS is established it needs to have the capability to interact with vessel traffic and respond as and when necessary not only to developing traffic situations but prior to their development also. This means that VTSOs have a duty of care to monitor and look after the safety of navigation in their VTS area.

SOLAS V regulation 11.6 states, "*Any adopted ship reporting system shall have the capability of interaction and the ability to assist ships with information when necessary*." Like a VTS, the authority managing the SRS also has the right to interact with vessel traffic, assisting with information as and when necessary.

SOLAS V regulation 12.3 states that, "*The use of VTS may only be made mandatory in sea areas within the territorial seas of a coastal State.*" In my opinion there seems to be a bit of an anomaly here. Both a VTS and SRS contribute to safety of life at sea, safety and efficiency of navigation and/or protection of the marine environment. Both can interact with vessel traffic and both provide an Information Service. SOLAS V regulation 12.1 has additional wording, "... *adjacent shore areas, work sites and offshore installations from possible adverse effects of maritime traffic.*"

Resolution A.857(20) section 2.1.2 states that, "*A clear distinction may need to be made between a Port or Harbour VTS and a Coastal VTS. A Port VTS is mainly concerned with vessel traffic to and from a port or harbour or harbours, while a Coastal VTS is mainly concerned with vessel traffic passing through the area. A VTS could also be a combination of both types. The type and level of service or services rendered could differ between both types of VTS; in a Port or Harbour VTS a navigational assistance service and/or a traffic organization service is usually provided for, while in a Coastal VTS usually only an information service is rendered.*" Whilst a VTS can be any one of the three types, an adopted SRS as such is clearly of the coastal type, although there may be ports and/or harbours within the same area.

Ship Reporting Systems

The Dover Straits has a worldwide reputation for being one of the busiest waterways in the world. The TSS developed out of a series of experiments begun in 1967 but it was not until 1971, after a series of accidents, that the authorities were galvanised into action. Action was taken through the IMO, which resulted in the formation of the Dover Strait Traffic Separation Scheme (TSS). The scheme was the first to be set up in the world under radar surveillance. It was also the first to be adopted by the IMO and coincided with the revised COLREGS of 1972, which includes Rule 10. The adoption was not finalised until 1977. Since then many other TSS in various Straits around the world have been adopted by IMO.

More and more SRS incorporating a TSS are being adopted by IMO. Most if not all of the areas are operated from a VTS centre. The Straits of Gibraltar, Strait of Bonifacio, Straits of Malacca and Singapore, Gulf of Finland, Torres Strait, Great Barrier Reef (*REEFREP*) and the Great Belt (Storebælt) are some to name but a few. The latter named is the major of the three Straits of Denmark that connect the Kattegat to the Baltic Sea. The waters are international and the adopted SRS *BELTREP* is operated from the Great Belt VTS centre.

In 2004 IMO adopted Resolution MSC.161(78), which gave approval to the *REEFREP* SRS to provide Navigational Assistance, "*In circumstances where information available to REEFCENTRE may assist on-board decision making REEFREP may initiate interaction with an individual ship to provide this information.*" This may include circumstances where a ship may be standing into shallow water (for example, in areas of restricted navigation where there is radar/ais coverage) or deviating from a recommended route. The Australian authorities are naturally very keen to protect the Great Barrier Reef, which is the largest coral reef system in the world as well as being the largest World Heritage Area.

In 2006 IMO similarly adopted Resolution MSC230(82), which gave approval to the *BELTREP* SRS to provide individual information to a ship particularly in relation to positioning and navigational assistance or local conditions. Like the Australians, the Danish authorities are keen to ensure the safety of navigation particularly in the vicinity of the Great Belt Bridge, which could be considered to be an offshore installation, albeit joined at both ends to the shore. Unfortunately, a ship has already collided with this Bridge causing a fatality on the ship itself (see Danish Maritime Authority *Karen Danielsen* accident report).

Australia and Denmark are two examples of States where the protection of their individual environments from possible adverse effects of maritime traffic is of extreme importance. In both cases their adopted SRS were upgraded by IMO for the provision of navigational assistance to

individual vessels.

Navigational Assistance Service

IMO Resolution A.857(20) already approves and currently only recognises, Navigational Assistance Service (NAS) as one of three types of service that a VTS can provide to vessel traffic. IMO have used carefully chosen words by stressing that, "*when the VTS is authorized to issue instructions to vessels, these instructions should be result-oriented only, leaving the details of execution, such as course to be steered or engine manoeuvres to be executed, to the master or pilot on board the vessel.*" In other words, one should not instruct a ship what specific course to steer or what specific speed to proceed at. NAS itself can be provided through an Information Service (INS) using the correct terminology, being guided by Resolution A.918(22) '*Standard Marine Communication Phrases*' (SMCP). Information provided by a VTS should at all times be based on fact whereas advice is based on a professional opinion.

There is much confusion over the term '*Navigational Assistance Service*', with different interpretations on what it actually means including, dare I say, *Shore Based Pilotage* (SBP). When NAS is provided by a Pilot from a VTS centre it is NOT SBP, as an act of pilotage can only be carried out by a Pilot on board a ship itself. How NAS is provided, who provides it and when, is up to the VTS Authority, the ship's Master or both. It is a service to assist onboard navigational decision-making and to monitor its effects. The key words here are *assist* and *monitor*.

Authorities are starting to look carefully as to how they can best provide advice to vessels that appear to be navigating in such a manner as to cause concern. The SMCP provides a terminological hierarchy where important message markers can be used as the sequence of events unfolds. The main message markers are *Information*, *Warning*, *Advice* and *Instruction*. There is some confusion as to the meaning of the words *Advice* and *Instruction*. *Advice* is based on a recommendation whilst *Instruction* is based on a regulation, which could be local or national. As the word *Advice* is based on a recommendation, in my opinion it would be more assertive to use the word *Recommend* instead of Advice, or both. Resolution A857(20) 2.3.4 is confusing by stating that, "*When the VTS is authorized to issue instructions to vessels, these instructions should be result-oriented only...*". The word "*instructions*" in this context is misplaced and in my opinion should be replaced by *advice*.

The difficulty arises as to what terminology should be used when it becomes increasingly apparent, even after information and warnings have been provided by the VTSO, that a vessel is not changing its course to avoid some navigational hazard. There is a strong temptation by the VTSO to tell the vessel to steer a specific course. The VTSO will not necessarily know what sort of compass the vessel has or even what errors the compass has. The VTSO may not be aware of how the environment is affecting the vessel or if there are any small targets in the vicinity of the vessel in question. All the VTSO knows from monitoring the vessel's track that the vessel is in imminent danger of grounding or having a collision, for example. Every vessel is at the centre of its own compass. This means that a VTSO could *recommend* a true course of xxx degrees, a true bearing of xxx degrees or even a compass direction. The word *steer* has not been used. Under the pressure of stress, individual human factors vary considerably, which is why specific training in the provision of NAS, particularly on a simulator is extremely important.

Liability Issues

IMO Resolution A857(20) 2.2.1 states that, "*In planning and establishing a VTS, the Contracting Government or Governments or the competent authority should ensure that a legal basis for the operation of a VTS is provided for and that the VTS is operated in accordance with national and international law and that that a VTS authority is appointed and legally empowered.*" This means that the relevant authorities must take into account the legal implications which may arise if there is a shipping accident caused by the failure of the VTSO to carry out his or her duties properly.

Even with apparently well regulated VTS operations in force, many incidents and accidents are occurring in VTS areas and, quite naturally, Protection and Indemnity (P&I) Clubs are becoming increasingly worried as to why this is so. More and more reports by various marine accident organisations are including an in depth look at how the VTS operations performed at the time of the incident/accident. A considerable number of accidents investigated find that a lack of or improper communications, ship/ship or ship/shore, were the root cause.

Are VTS regulations lacking? Is the standard of VTS training not high enough? Or is it down to just plain good old human factors? Whatever the cause, there has yet to be a judgement against any VTSO. It is more likely that the authority responsible for managing the VTS will be taken to task, as has already happened in South Africa.   Over the years VTS has developed almost in a total legal vacuum and only now, when the systems are actually in operation in many parts of the world, are hurried questions being asked about regulatory aspects, legal responsibilities and liability.

VTSs around the world provide different services to all kinds of vessel in a wide range of geographical, weather and sea conditions. Furthermore, the common law and policies of the countries in which VTSs operate will often be different from each other. Most VTSs will have their own statutory structure, which will govern their creation and operation. The nature, size and funding of the organizations which run the VTSs will differ. No act or omission, which may give rise to a possible claim against the VTS, will be the same. Moreover, distinct issues may also arise when a TSS is introduced, especially in circumstances where it is part of a VTS.

When considering questions of legal liability and as stated in Resolution A857(20), a clear distinction must be made between a port or harbour VTS and a coastal VTS, as the two cater for fundamentally different situations. Each potential claim against a particular VTS will have to be considered separately, taking into account not only the specific facts, which gave rise to the claim, but also the specific characteristics of the VTS in question.

The VTSOs should not have to worry about liability issues when carrying out their VTS duties. They know they have a duty of care with respect to the safety of navigation in their area. Their authority should have a risk management policy and be carrying out risk analysis checks at regular intervals as well as taking steps to mitigate any known risks.

VTS Training

Resolution A857(20) requires a Competent Authority to ensure that, "*the VTS authority is provided with sufficient staff, appropriately qualified, suitably trained and capable of performing the tasks required, taking into consideration, the type and level of services to be provided.*" It is important that all operational personnel are not only trained to the IALA V103 standards but have been found competent to operate as well. The VTS Authority should also have standard operating procedures in place, for both external and internal situations that might arise.

Operational competence is assessed during On the Job Training (OJT), as this is the final phase of training for a VTSO.   There is a misconception that a certificate received after successfully completing an accredited V103/1 (VTS Operator) training course allows the person to operate as a VTSO.   The OJT is equally if not more important, as training is specific for the area to which the newly trained VTSO has been posted.   The V103/1 certificate of competence provides a professional level for all those operating in a VTS centre.

The IMO Standard Marine Communication Phrases (SMCP) were compiled to assist in the greater safety of navigation and of the conduct of the ship, as well as to standardize the language used in communication for navigation at sea, in port approaches, waterways and harbours, and on board vessels with multilingual crews.   It is not a perfect document and there are some anomalies contained within it, which unfortunately conflict with Resolution A.857(20).   These conflicts can make it difficult for VTS instructors to provide what they consider to be the correct interpretation.

One of the problems facing VTSOs is language and the difficulties in communicating with vessels having multilingual crews, particularly in times when a vessel is navigating in a haphazard way. The SOLAS Convention requires English to be used on the bridge as the working language for bridge-to-bridge and bridge-to-shore safety communications as well as for communications on board between the pilot and bridge watchkeeping personnel, unless those directly involved in the communications speak a common language other than English.   The use of the English language in a VTS centre is not generally a problem but it is on many ships and this is a worrying concern with VTS authorities.   Although VTS is now included within SOLAS, the International Convention on Standards of Training, Certification and Watchkeeping for seafarers (STCW) does not yet include a requirement for knowledge of or even an awareness of VTS.   It is hoped that this situation will change during the forthcoming year.

As far as OJT is concerned it is extremely important that VTSOs are fully aware of their duties and responsibilities, their VTS and/or SRS area of responsibility and what they can or cannot do. Many VTSOs are unaware that Standard Operating Procedures (SOP) exist and if they are, when they are to be used.   The need for training, updating and continual assessment cannot be stressed enough. Good training and the use of simulation is very important to maintain continued proficiency and often prepares the VTSO for the unexpected.

Vessel Traffic Services and Ship Reporting Systems

It is becoming increasingly clear, that a number of SRS areas are being operated from VTS Centres. This scenario creates a confusing situation with the Masters of vessels visiting and/or transiting these areas. The various acronyms and radio call signs that are being used by different authorities are also confusing. Masters talking to a VTS centre (using a VTS call sign) can quite naturally think that, even though the ship is in a SRS area, the VTS centre will also provide the types of service as laid down in Resolution A.857(20).

A situation could arise in fog whereby a Pilot is taken sick whilst on the bridge and the Master, not knowing exactly where the ship is, requests navigational assistance from the VTS, which itself is managing a SRS. Does the VTS centre provide navigational assistance in the form of information or take a more active role in the on board decision-making, in other words be more assertive?   In certain circumstances other traffic in the same area may have to be re-routed to avoid a new navigational hazard.

Is there really a difference between the two operations? A VTS centre managing a SRS, albeit in international waters, can be likened to a coastal VTS. They both have the authority to interact with vessel traffic and to receive and provide information as and when required. Some now have the authority to provide navigational assistance. But is this enough? In my opinion there are certain areas which justify being able to provide any one of the three types of service offered by a VTS in territorial waters, in order to safeguard the safety of navigation and protection of the environment whether man-made or natural. Those specific VTS centres managing an adopted SRS could be specially designated by IMO. SOLAS V Regulation 12.3 which states that, "*the use of VTS may only be made mandatory in sea areas within the territorial seas of a coastal State*". Does this mean that an authority can establish a '*voluntary*' VTS in international waters?

In adopting Resolution A.857 (20), IMO recognised "*that the use of differing VTS procedures may cause confusion to Masters of vessels moving from one VTS area to another*". VTS procedures are already being used in certain SRS areas. Radio call signs are themselves very confusing with the words, *VTS*, *VTIS, Traffic* and *Port Control*, for example, being used by different authorities. If and when IMO agree to designate VTS status to certain SRS, it is important that, in order to maintain a common performance standard, the use of current VTS procedures should be encouraged rather than re-invent a whole new set of processes and procedures. Cooperation and understanding between the ship and the shore is essential for the safe operation of vessels in a VTS area.

Masters should make the best use of VTS at all times in navigational decision making. As in any navigation situation, Ships' Masters and mariners are expected to exercise good seamanship and comply with the Collision Regulations. At no time should the authority of the Master be compromised by participation in an SRS or VTS. Whatever the outcome, the authorities concerned with VTS will always need to ensure that their personnel are trained to the highest IALA standards.

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Biography

Captain Terry Hughes established VTS training in the UK in 1982 and has, together with IALA and its VTS Committee members, been instrumental in obtaining professional VTS qualifications for VTS personnel. These qualifications are now internationally recognised (IMO/SOLAS).

International Maritime Consultancy was established in 1996 by Captain Terry Hughes with a view to providing a quality, specialised service for all those connected with Vessel Traffic Services (VTS) and Management (VTM).

For the last 27 years Terry has been involved in training many VTS Operators from various parts of the world as well as carrying out operational inspections at VTS Centres for various Maritime Administrations. As an independent Vessel Traffic Management Consultant he has undertaken expert witness projects in VTS related legal cases in the UK, Europe, United States and South Africa.

Captain Hughes is a Fellow of the Nautical Institute and Royal Institute of Navigation as well as being a Younger Brother of Trinity House and a Livery Member of the Honourable Company of Master Mariners. He is currently Chairman of the Personnel & Training WG in the IALA VTS Committee.

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Note:

The opinion expressed in this paper is entirely that of Captain Hughes and not of any organisation he is connected with.