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Agenda item 10, VTS Manual

Technical Domain / Task Number TD 1 (1.1.2) and TD 3 (task 3.1.1 and task 3.1.2)

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**NL Contribution to modification VTS Manual**

**Summary**

This document provides the Netherlands input for the modification of the VTS Manual (task 1.1.2 as reflected in document VTS40-2.2. This contribution reflects in ANNEX A a number of proposals to improve the consistency within the VTS Manual and with other IALA documents. A major part of this input document provides textual contributions, proposals and suggestions on the Section *TRAINING AND QUALIFICATION* (and its sub-sections), taking into account the current development in parallel of

* V-103-5 VTS Revalidation Model Course (TD 3, task 3.1.1)
* Produce a VTS Training Manual to complement the V-103 and its model courses (TD 3, task 3.1.2)

**Purpose of the document**

To contribute to the review and modification of the VTS Manual.

**Related documents**

* VTS Manual
* VTS40-9.1.1
* VTS40-10.1.1

**Background**

Since the publication of the VTS Manual 2012 a considerable number of developments within IALA took place to mature IALA Recommendations, Guidelines and Model Courses concerning Training of VTS Personnel, Certification, Revalidation and the stimulation of the use of Simulators. These developments are intended to improve, professionalize and harmonize the training and organizational aspects for VTS personnel in respond to current/future changing service provision and required competencies.

**Discussion**

It is IALA’s intention to provide in a new VTS Manual 2016 to be distributed at the VTS Symposium 2016. The IALA VTS Committee has been tasked to develop the new manual, to discuss and agree on proposed textual changes in respect to the current VTS Manual 2012. The VTS Manual is an important product of IALA as part of the IALA documents policy as adopted by Council.

**Action requested of the Committee**

The Committee is requested to:

1. to study and discuss the proposed textual contributions,
2. for consistency to use the acronym VTSO where appropriate,
3. to insert a clarification on the difference between VTS Operators and VTS Personnel,
4. to agree on the textual proposals and insert in the draft VTS Manual where appropriate.

**ANNEX 1 - proposals and textual suggestions by the Netherlands**

**EXTRACT OF ELEMENTS RELATED TO VTSOs AND TRAINING**

**VTS PERSONNEL**

* 1. **Introduction**

VTS Operators, masters, bridge watchkeeping personnel and pilots share a responsibility for good communications, effective co-ordination and understanding of each other’s role for the safe conduct of vessels in VTS areas. They are all part of a team and share the same objective with respect to the safe movement of vessel traffic.

Depending on the size and complexity of the VTS area, service type provided as well as traffic volumes and densities, a VTS centre may include VTS Operators, VTS Supervisors and a VTS Manager. It is for the Competent/VTS Authority to determine the appropriate levels in order to meet its obligations and to ensure that appropriately trained and qualified personnel are available.

VTS Authorities should develop detailed job descriptions for VTSOs at each VTS centre, based on the service type or types to be provided, the equipment available and the co-ordination needed with other internal departments and allied services.

Examples of job descriptions are shown in ‘Roles and Responsibilities’ below and in IALA Recommendation V-103. These job descriptions can be expanded as necessary to encompass more fully the responsibilities specific to each VTS centre.

**Roles and Responsibilities**

VTS Operator

The key person in any VTS operation is the VTS Operator, who is responsible for establishing and maintaining a vessel traffic image, which will facilitate interaction with the vessel traffic thus ensuring the safety of navigation within the VTS area of responsibility. The VTS Operator is also required to decide on actions to be taken in response to developing traffic situations, after careful analysis of the data and information being collected.



*Centrale Zandvliet, Belgium*



*VTS Centre - Istanbul, Turkey*



*Coast Guard Operator - Genoa VTS Centre, Italy*



*VTS Centre Rotterdam, The Netherlands*

The job description for the VTS Operator should include the aims and objectives of the operational work carried out by the Operator, the tasks and responsibilities involved together with the skills and knowledge required to carry out the work efficiently and effectively. The job description should also clearly state what service type the VTSO is authorised to provide.

The following list provides examples of the activities carried out by a VTSO:

* Maintain situational awareness and monitor the vessel traffic image with all available sensors within the area of responsibility;
* Maintain communication with ships as appropriate to the service type provided by the VTS using all available communication facilities;
* Operate equipment for communications, data collection, data analysis and establishment of a vessel traffic image;
* In an Information Service (INS), provide relevant information at appropriate times;
* In a Traffic Organization Service (TOS), organise and plan the vessel traffic movements within a waterway to prevent congestion, groundings, collisions and other dangerous situations;
* In a Navigational Assistance Service (NAS), assist and provide such information as may be required to aid a ship in difficult navigational or meteorological circumstances or in case of defects or deficiencies.
  + - * NAS may be given on request by a vessel or when deemed necessary by the VTS;
* Communicate with allied services and other agencies as appropriate;
* Ensure that all adopted standard operating procedures and relevant waterway regulations are adhered to;
* Take appropriate actions in emergency situations and other special circumstances defined for the VTS area.
  + - * Where appropriate, co-ordinate communications for such situations and/or circumstances; and
* Maintain a log of all incidents/accidents and all other relevant events occurring within the area of responsibility.

VTS Supervisor

The VTS Authority may establish the post of VTS Supervisor. The VTS Supervisor is responsible for assisting, managing and/or co-ordinating the operational activities of the VTS Operators. A VTS Supervisor should hold a current VTS Operator qualification together with the appropriate endorsements.

The job description for the VTS Supervisor should include the aims and objectives of the operational work carried out by the Supervisor, the tasks and responsibilities involved together with the skills and knowledge required to carry out the work efficiently and effectively. The job description should also clearly state the management responsibilities delegated by the VTS Authority/Manager. Where a VTS Manager is not appointed, the Supervisor may be responsible for the day-to-day running of the VTS centre.



*Duty Port Controller (Supervisor) - London VTS, UK*

VTS Authorities should develop detailed job descriptions for VTS Supervisors, based on the services to be provided by the particular VTS centre. In addition to the activities appropriate to a VTS Operator, the job description for the VTS Supervisor may include the following activities:

Supervising VTS Operators;

Ensuring that proper co-ordination takes place between the VTS, allied and emergency services;

Ensuring that the service provided meets the requirements of both the stakeholders and the VTS Authority;

Ensuring that a log of all incidents/accidents occurring within the area of responsibility is maintained;

Assisting in training and assessing the VTS Operators as defined by the VTS Authority and/or VTS Manager;

Performing administrative tasks as defined by VTS Manager; and

In the absence of a VTS Manager, ensuring that the duties and activities normally carried out by the Manager, are adhered to.

VTS Manager

The VTS Authority may establish the post of a VTS Manager. The VTS Manager is responsible for managing and co-ordinating the activities of the VTS centre on behalf of the VTS Authority. In some cases, a VTS Manager may have the responsibility for more than one VTS centre. Ideally, the VTS Manager should also possess a VTS Operator/Supervisor qualification. Is this being too perscriptive?? - IT suggestion on VTS Manager training to be noted!!

Basic knowledge of VTS functions and the tasks performed by the VTSO at the VTS centre are beneficial to good management. It is important for the VTS Manager to understand the needs of stakeholders and vessels using the VTS and to determine their requirements and expectations.

VTS Authorities should develop detailed job descriptions for VTS Managers, to reflect the services provided by the VTS centre(s). In addition to having knowledge of the activities appropriate to a VTS Operator/Supervisor, the job description for the VTS Manager may include the following responsibilities:

Ensuring that the aims and objectives of the VTS are met at all times;

Ensuring that all VTS operations follow current rules, regulations and legislation;

Managing and coordinating financial, technical and human resources;

Ensuring that the standards set by the Competent/VTS Authority for operator qualifications and training are met - and that the training programme is in compliance with the safety and quality management system for the VTS;

Ensuring that the training and certification of VTSOs are appropriate to the service types being provided;

Ensuring VTS quality standards are maintained;

Maintaining awareness of continuing development for the VTS centre(s);

Mainitaining a safe working environment

* Establish saftety awareness
* Promote the Safety Culture of the VTS (or the overlaying organisation;

Planning and developing of emergency procedures as appropriate to the VTS area of responsibility;

Ensuring that all adopted standard operating procedures are reviewed and amended as required;

Developing and maintaining a good public information and relations programme; and

Being prepared to provide evidence in the event of incidents or accidents occurring in the VTS area.

To this end, the Manager should ensure that all such events are properly recorded and readily available for examination by the Competent/VTS Authority.

On-the-Job Training Instructor (OJT Instructor)

The VTS Authority should ideally provide for an OJT Instructor who is responsible for managing and coordinating the OJT to the VTSO. In some instances the responsibilities for OJT may fall to a VTSOor VTS Supervisor.

The OJT Instructor should have the basic skills and appropriate instructional techniques in order to be able to fulfil the training requirements as defined in IALA Recommendation V-103 and Model Course V-103/4. The OJT Instructor should be fully conversant with the processes and procedures required to meet the OJT requirements of the VTS centre(s) in which the training takes place.

The job description for the OJT Instructor should include the aims and objectives of the operational work carried out by the instructor, the tasks and responsibilities involved together with the skills and knowledge required to carry out the work efficiently and effectively.

The job description for the OJT Instructor may include the following activities:

* Prepare and provide the OJT programme taking into account the requirements of the Competent/VTS Authority;
* Review and update the contents of the OJT programme;
* Assess the trainee's personal ability and adapt the OJT programme accordingly;
* Continuously monitor and assess the trainee's progress and document this in the trainee's task book;
* Provide feedback about the trainee's performance to the VTS Supervisor and/or Manager; and
* Report all pre-OJT training deficiencies to the VTS Supervisor and/or Manager.

**Staffing Level**

The availability of appropriately qualified VTS staff is an essential resource without which VTS operations cannot safely be managed. Determining the adequacy of the number of VTSOs on duty is often difficult to quantify with any degree of accuracy. Prior to establishing the staffing level a Task Analysis must be performed in order to determine the (expected) workload of the VTS and its operators. Invariably this will be a balance between numbers of factors that a VTS Authority will need to keep under periodic review, such as:

* Periods of Duty;
* Operational Procedures;
* Physical Working Environment;
* Human Resource Requirements;
* Types of Service offered;
* Interaction with Allied Services and adjacent VTS Centres;
* Technology, Equipment and Communications;
* Incidents, accidents and other emergencies;
* Stress-related workload.

Factors for consideration when determining periods of duty for VTS Operators and Supervisors include:

* Traffic volumes and densities;
* Navigational complexity associated with the VTS Area;
* VHF radio traffic volume;
* The number of VTS interventions anticipated, e.g. the extent to which navigational assistance and traffic organization is typically required;
* The limits within which operators may develop and maintain situational awareness;
* Health and Safety requirements, particularly when working with visual display units;
* The working environment; and
* Shift patterns.

IMO Resolution A.857(20) Annex 2 - ‘*Guidelines on the Recruitment, Qualifications and Training of VTS Operators*’ requires that in planning and establishing a VTS, the VTS Authority should:

* ensure that the VTS Authority has the equipment and facilities necessary to effectively accomplish the objectives of the VTS and;
* ensure that the VTS Authority has 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, as per the current IMO Resolution A.857(20) - Annex 2.

Further guidance may be obtained from IALA Guideline 1045 - ‘*Staffing Levels at VTS Centres.*’

**TRAINING AND QUALIFICATION**

**Introduction**

A major factor in the efficient operation of a VTS centre is the standard of competence of its VTSOs. Recognising that VTSO’s are members of a profession whose principal goal is to ensure safe, efficient and environmental friendly traffic by means of interaction with mariners and maritime pilots, their competence needs to reflect that professional responsibility.

In order to ensure that the VTS Professionals mainitain an adequate level of competency at all times, the Competent Authority should establsh requirements for a Revalidation Process as described in IALA V103/5.

In a VTS area, as specified by the relevant VTS Authority, VTSOs should assist vessel traffic by providing information, navigational assistance and traffic organization, as and when required by the VTS centre or vessel concerned. It is for the VTS Authority to ensure that appropriately trainedVTSOs are available to undertake these commitments.

In order to ensure that standards for training VTSO’s meet the appropriate level, the relevant Authority will need to provide the necessary accreditation and approval, according to IALA Guideline No 1014 - ‘*Accreditation of VTS Training Institutes for Training VTS Personnel*.’ This should help to ensure the competence of personnel that occupy operational positions in a VTS centre.

**Publications**

IALA has prepared several publications that provide recommended standards and guidelines on the aspects concerning the training and qualification of VTSOs. (ANNEX G)

**IALA Recommendation V-103**

IALA Recommendation V-103 - ‘*Standards for Training and Certification of VTS Personnel*’, describes the principles and objectives of VTS training, proposes entry standards and aptitude testing and describes the basis for the conduct and award of qualifications, certification and annual assessment as well as outlining the possibilities for career enhancement. Training of VTSOs follows the STCW format used by IMO for the training of shipboard personnel and sets out the requirements for competency-based training for VTSOs. (See also ANNEX A, ANNEX B & ANNEX C - IMO Resolution A.857(20), SOLAS Chapter V Regulation 12 and MSC Circular 1065).

**STCW Convention**

The 1978 STCW Convention was the first to establish basic requirements on training, certification and watchkeeping for seafarers on an international level. Previously the standards of training, certification and watchkeeping of officers and ratings were established by individual governments, usually without reference to practices in other countries. As a result standards and procedures varied widely, even though shipping is one of the most international of all industries. The Convention prescribes minimum standards relating to training, certification and watchkeeping for seafarers which countries are obliged to meet or exceed.

The 1995 amendments, adopted by a Conference, represented a major revision of the Convention, in response to a recognized need to bring the Convention up to date and to respond to critics who pointed out the many vague phrases, such as ‘to the satisfaction of the Administration’, which resulted in different interpretations being made. The 1995 amendments entered into force on 1 February 1997. One of the major features of the revision was the division of the technical annex into regulations, divided into chapters as before, and a new STCW Code, to which many technical regulations were transferred. Part A of the Code is mandatory while Part B is recommended.

**STCW Code**

The regulations contained in the Convention are supported by sections in the STCW Code. Generally speaking, the Convention contains basic requirements which are then enlarged upon and explained in the Code. Part A of the Code is mandatory. The minimum standards of competence required for seagoing personnel are given in detail in a series of tables. Part B of the Code contains recommended guidance that is intended to help Parties implement the Convention. The measures suggested are not mandatory and the examples given are only intended to illustrate how certain Convention requirements may be complied with. However, the recommendations in general represent an approach that has been harmonized by discussions within IMO and consultation with other international organizations.

The Manila amendments to the STCW Convention and Code were adopted on 25 June 2010, marking a major revision of the STCW Convention and Code. The 2010 amendments entered into force on 1 January 2012 under the tacit acceptance procedure and are aimed at bringing the Convention and Code up to date with developments since they were initially adopted and to enable them to address issues that are anticipated to emerge in the foreseeable future.

The 1978 STCW Convention (with 1995 and Manila amendments) provides a specific format to be used in the training and assessing of watchkeeping officers. The framework includes:

* The competencies that are deemed necessary to perform a task or skill and are required by a candidate;
* Prescribed standards of knowledge, understanding and proficiency that must be achieved by the candidate in order to properly perform their functions aboard a ship in accordance with internationally agreed criteria;
* The methods for demonstrating competence that provide evaluation techniques to assess the candidate; and
* The criteria for evaluating competence that provides the means for an assessor to judge whether a candidate can perform the related tasks, duties and responsibilities.

**Recruitment**

Prospective candidates for VTSO training (V-103/1) should meet the minimum entry requirements as defined by the Competent~~/VTS Authority.~~ The selection procedure for newly recruited VTSOs should, at a minimum, include a well developed and standardised aptitude assessment (also including cognitive tests), medical examination, together with an assessment of the personal suitability of the candidate.

The selection of VTSOs already in possession of a VTSO’s Certificate together with the appropriate On-the-Job Training (OJT) endorsement will depend largely on previous operational experience, if any, as a VTSO at a VTS centre.

VTSOs may be recruited directly as VTS Supervisors if they can demonstrate to the VTS Authority that they have the required experience to undertake the responsibilities and duties of a VTS Supervisor, and have sufficient leadership skills. The VTS Authority should ensure that such personnel have received VTSO training and any additional training as may be necessary to meet the required standards of competence for a VTS Supervisor.

**Medical (Physical/Mental) Requirements**

Candidates should meet the medical standards of health established by the Competent/VTS Authority prior to recruitment.

**Selection**

Assessment is the field of specialists. Poorly designed assessment procedures may lead to adverse results. The best results will be obtained when representatives of the VTS-centre work together with behavioural specialists. Underneath is an example of a procedure:

Human Resources staff normally select on ‘hard criteria’, such as prior education, experience and other pre-defined criteria. The candidates who meet these criteria may take part in a personal assessment which gives an estimate of the chances of the candidate to succeed during training by assessing his cognitive abilities, skills and expected behaviour. Test procedures and norms must be especially developed for the job of VTSO.

Furthermore the assessment facility should be able to demonstrate the reliability and validity of the test material which is being used. The assessment facility will write a report containing a description of the norm-group being used and the normated scores of the assessment and their advice concerning suitability of the candidate.

The question whether the candidate fits in the company culture is best answered by representatives of the VTS-centre. It is preferred that they use a semi-standardised procedure when assessing the candidate. The assessment may contain an interview, presentation or other tool. A job-sample may be part of this assessment when the representatives had training in assessment.

It is very important that not only the VTS-centre is gaining information from the candidate, but that the candidate also receives information about the VTS-centre, the job, and the culture he will work in. Candidates are very eager to receive this kind of information, which may help them to decide on their future career move. Meeting a future colleague whom they ask questions may help them to understand what is lying ahead.

**Personal Attributes**

Personal attributes are important factors in the selection criteria. They can be measured on different levels 1) personality as a predicture of future behaviour, which should be done by a behavioural specialist and 2) behaviour, which is typically assessed by representatives of the VTS-centre. Candidates should at a minimum have an appropriate sense of responsibility, show independence as well as having a willingness to co-operate with others as part of a team.

**Aptitude Assessment**

Aptitude assessments should be carried out prior to hiring. All prospective candidates should be assessed, even if they have previous maritime experience. Besides cognitive testing, skills testing and a personality assessment, a standardised and well administered job sample may add significantly to the validity of the test procedure. Assessments should be designed to determine, among other qualities, the ability of candidates to:

* distinguish among relevant and irrelevant information;
* combine auditory and visual information;
* demonstrate spatial and situational awareness;
* demonstrate alertness and decisiveness when required;
* carry out several tasks simultaneously;
* carry out routine work without losing situational awareness;
* show initiative while working within a framework of standards, regulations and structured procedures;
* Safety awareness / safety culture???
* recognise and manage work related and personal stress; and
* demonstrate appropriate communication and literacy skills.

**IALA Model Courses**

The basis of VTS training is set out in the IALA Model Courses.

The Model Courses are designed to produce universally common standards of training and performance. These Model Courses provide a basis for VTS training institutes to design courses. It is for the relevant Competent Authorities to approve the courses undertaken at VTS training institutes.

Depending on the recruitment level and background of candidates, some elements of the Model Course could be addressed through an assessment of prior learning and experience, reflecting both the formal training and experience of the candidate. Any such module exemption should be approved by the respective Competent Authority.

**Competence Charts**

The competence charts in IALA Recommendation V-103 have been used to develop the detailed teaching syllabus and form the foundation of the Model Courses. The charts show the subjects for which competence is needed, the knowledge, understanding and proficiency that are required, the methods for demonstrating competency and the criteria by which it should be evaluated. The Competence Charts in IALA Recommendation V-103 follow a similar format to that of the IMO Model Courses and are based on the STCW 95 Code.

**VTS Operator and Supervisor Training**

VTS Operator and Supervisor training should be carried out at an accredited VTS training institute and be conducted in accordance with the appropriate IALA Model Courses V-103/1 - ‘*VTS Operator Training* and V-103/2 *VTS Supervisor Training*’. VTS Operator candidates without previous maritime experience will normally require all modules in Model Course V-103/1.

It is important to note that the training programme concentrates on the learning outcomes, i.e. the degree of competence acquired during formal instruction and structured On-The-Job Training. Where competence can be demonstrated and is documented, training should be developed to reflect this in order to avoid unnecessary instruction. The emphasis should always be on obtaining the end result - namely, professionally qualified VTS personnel.

Training institutes and organizations delivering VTS training should provide training services within the framework of a training management system that fulfil the requirements of an approved quality system standard (Chapter 19). It is important to ensure that the programme for the training and assessment of VTSOs, for the purpose of certification and endorsement is:

* able to meet and maintain the standard of competence as indicated in IALA Recommendation V-103;
* structured in accordance with the established training procedures based on clearly communicated, measurable and achievable objectives;
* conducted, monitored, evaluated and supported by appropriately qualified instructors; and
* managed in a manner that ensures the relevancy and accuracy according to experience gained, technological advance, regional, national and international recommendations, laws and regulations.

**Use of Simulators**

Wherever practical, simulation should be used in the training programme. Simulators offer an excellent interactive environment in which the skills and competencies required of a VTS Operator can be acquired and assessed.

VTS simulation should be a well-designed, standardised procedure containing: learning goals, a written scenario for the instructor and an assessment forms. Staff administering VTS-simulation should be especially trained for this purpose. VTS simulation can be used to train in a dynamic environment. As the training proceeds, the realism of the exercises will increase. If possible the capabilities, limitations and possible errors of the equipment used should be a part of the simulator training. Scenarios may also be used that would not normally be encountered in everyday situations, in order to improve exposure. For more information see IALA Guideline No.1027 - ‘*Simulation in VTS Training*’ contains useful information concerning the design and implementation of VTS exercises using a simulator.



*VTS Training on a Simulator - Port of London Authority*

**On-the-Job Training (OJT) (IALA V103/3)**

On appointment to a VTS centre, the operator trainee will undergo On-The-Job Training (V-103/3) in order to acquire a thorough knowledge of the particular circumstances and requirements appropriate to the VTS centre and its relevant VTS areas. A distinct characteristic of OJT training is the unpredictability of the situations that will occur. OJT is therefore the less standardised training tool. However, it is strongly recommended to standardise the exchange of information from the On-the-Job Instructor to the student as much as possible, by means of training of the mentor.

Furthermore, iIt is important to ensure that the On-The-Job Training programme is properly structured and that operator trainees achieve a common minimum level of knowledge and skill as defined by the VTS Authority. It is useful to deliver this training by utilising a Training Task Book. An example of the VTSO OJT Task Book can be found in Model Course V-103/4. A similar process is followed for a VTS Supervisor endorsement.

On satisfactory completion of the On-The-Job Training, the appropriate endorsement will be entered on the VTS Operator Certificate, pass or Log Book and the VTS Authority may then authorise that person to carry out the duties of a VTS Operator at that particular VTS centre.



*OJT - Great Belt VTS*

**On-The-Job Training Instructor (OJTI) Training**

The knowledge, skills and experience of VTS OJT Instructors are key attributes in the successful training of VTSOs when undertaking On-The-Job Training. Potential Instructors should be identified and given the training to meet this demanding role. Model Course V-103/4 (OJT Instructor) has been designed to provide guidance on this training.

**Certification, Qualification, and the revalidation process for VTS proffessionals.**

Certification of New VTSOs

A VTSO Course Certificate should be awarded upon successful completion of the IALA Model Course V-103/1 *VTS Operator Training* course at an accredited VTS training institute. Upon successful completion of the necessary requirements for the Competent/VTS Authority a VTSO Certificate, pass and/or Log Book can be issued. After successful completion of V-103/3 *On-the-Job Training* at the specific VTS centre, the VTSO will be awarded an endorsement that will authorise the VTSO to operate as such.

VTS Supervisor training should be carried out at an accredited VTS training institute following the IALA Model Course V-103/2. On successful completion of the training, the appropriate endorsement should be made on the VTS Operator Certificate and/or Log Book. On-The-Job Training may follow according to the requirements of the VTS Authority.

An On-The-Job Training endorsement for the VTS Operator Certificate is only valid at the VTS centre for which the endorsement is made. A VTS Operator or Supervisor transferring to another VTS centre will be awarded a new endorsement, after having satisfactorily completed On-The-Job Training at the new VTS centre.

Maintaining Qualification

To ensure the continued maintenance of a VTS qualification, the Competent Authority should implement a process of Revalidation Training. Revalidation Training consists of periodic Recurrent Training which may be supplemented by Adaptation Training and/or Updating Training as deemed necessary. Each type of training should be involve a relevant process of assessment.

Completion of the Revalidation Process will result in the maintenance of a VTS qualification and the revalidation of VTS Certification Log.

Recurrent Training  
  
Recurrent training is given periodically in order to maintain currency of the VTSO. The recurrent training is an excellent way to ensure that the VTSO has sufficient exposure to rare but maybe critical events. Recurrent training is described in more detail in V103/5.

Adaptation training

Adaptation training is training which is required after significant changes are expected or have been made in the environment of the VTS with regard to:

1: Procedures

2: Equipment

3: Otherwise

in the VTS area, thus affecting the work of the VTSO. This training is custom made, depending on the changes, and initiated on request of the VTS-authority.

Updattraining Training

Updating Training is custom made, mostly individual, training designed following a gap analysis indicating that member(s) of VTS Personnel need additional training. Updating training may be required after a break in service of more than three months, unsatisfactory operational performance or other circumstances leading to a reduced level of competence.

**Accreditation of VTS Training Organizations**

Accreditation is the independent review of VTS educational programs at training institutes and organizations involved in VTS training. The purpose of accreditation is to ensure, as far as possible, that the services provided by the institute meet the requirements of IALA Recommendation V-103 and are within the framework of a Training Management System thus meeting the requirements of an approved quality system standard.

IALA Guideline 1014 - ‘ *Accreditation and Approval/Process for VTS Training*’, sets out the process by which VTS Training Institutes can achieve accreditation and approval to conduct VTS training leading to the issue of V-103/1, V-103/2 and V-103/4 Course Certificates.

* 1. Trends in VTS

The following trends have emerged in maritime operations and management:

### Standards

* Environmental standards will continue to acquire ever-higher stringency and priority;
* Professional competence of marine personnel will continue to vary, notwithstanding the adoption of international standards;
* The pursuit of common standards will continue, particularly on a regional basis; and
* Comprehensive and effective risk assessment will increasingly become the basis for the safe management of navigation.
* **the development of the IMO e-navigation concept may lead to further development of new services (Maritime Service Portfolio’s) with a need for further worldwide harmonization**
* **The growing focus on Safety Awareness and Safety Culture may lead to a need for further training on those aspects.** 
  + 1. User Requirements
* Commercial pressures will demand ever more rapid and reliable transport and cargo handling schedules, while reducing costs and improving quality of service;
* The need for more comprehensive wide-area traffic information will lead to an increase in the volume of information being exchanged **mainly digitally** between ships and shore organizations;
* **The foreseen decrease of manoeuvrable space, specifically in high traffic dense areas and those areas where alternative utilization of this space is expected, may lead to an intensifying need for assistance to - and management of vessel traffic from shore**
* Coastal waters and inland waterways will be increasingly used for recreational and other purposes. In addition, inland and short sea shipping will increase their environmental attractiveness as methods of transport of goods and passengers; and
* Co-ordination of port services will become increasingly important in the interests of safety, security, protection of the environment and improvement of economic performance, particularly where such services may be obtained from external sources.
  + 1. Technology
* Ship design and technology will continue to evolve, particularly in the areas of information processing and communication; and
* Advances in technology will necessitate an expanding requirement for capital expenditure and trained personnel. This will offer opportunities for increased efficiencies and the potential for the delivery of additional services **(both operational and technical).**
  + 1. Security and Allied Services
* Heightened international security concerns will have an impact on maritime trade and transport processes. These same concerns are already leading to a requirement to track commercial shipping at long range; and
* The use of formal and more effective systems to manage safety and security at sea and in port will increase.
* **The need for protection of data and information against intended/unintended is increasing (cybersecurity).** 
  1. Consequential impact on VTS

These overall maritime trends are likely to lead to the following consequences for VTS:

* VTS will play a central role in gathering and disseminating information for safety, security, environmental protection and economic performance purposes;
* Automated systems for the effective management and validation of transferred data between ships, VTS centres and VTS networks will be increasingly required;
* Exchange of information between VTS systems will lead to the formation of VTS networks;
* VTS information will increasingly be used by various allied services in the global tracking of vessels;
* The need for quality assurance to international standards for VTS systems, including equipment, personnel, and operating procedures, will increase;
* The need to assure and certify the competency of VTS operators and supervisors in order to reduce any exposure to increased liability will add to the scope and priority of such training.This should be achieved through the establishment of a Revalidation Process as prescribed in IALA V103/5;
* The need to manage recreational and other small craft traffic by VTS and by other means in order to ensure the safety of navigation in areas where commercial and high-density recreational traffic co-exist, will increase;
* As the quality and accuracy of vessel tracking improves, the possibility to control traffic by means of instructions, rather than information and advice, will be used more widely as a mechanism for reducing risk; and
* The regulated control of traffic by VTS centres, **within current and outside current** bounderies, will bring a greater exposure to liability.