LIAISON NOTE

Request for input – Guidance on Human Factors and Ergonomics in VTS

# INTRODUCTION

IALA conducted a workshop on Human Factors and Ergonomics in VTS at Chalmers University of Technology in Gothenburg, Sweden (12 - 16 October 2015), in conjunction with Chalmers University of Technology, the Dutch VTS Operator Training Foundation and the Port of London Authority. A conclusion of that workshop highlighted the need for guidance on raising awareness about safety culture and human factors, including incorporating the work into existing and developing IALA documentation.

The IALA VTS Committee has been tasked with developing guidance on human factors and ergonomics in VTS. The objective of this task is to provide awareness regarding the role of the human factor in the performance of a VTS to competent authorities and VTSOs. In addition, this guidance would support the implementation of human factors in the training cycle of initial training, sector training, recurrent training, updating training and adaptation training.

# DISCUSSION

Safety may be enhanced if VTSOs are aware of the human factor and are provided with tools in order to decrease the mistakes that can be made. The VTS Committee is focused on human factors on the performance level as well as human centred design, including ergonomics. This proposed guideline would provide a source of information to assist Competent and VTS Authorities in the preparation and implementation of an improved operational performance within the VTS organisation.

## Levels of Human Factors

Human Factors can be considered on different levels: the System Level and the Human Performance Level. The design of procedures and equipment must meet certain requirements on a system level in order to be used by the VTSO. This document will consider the Human Factor including the system level:

* Human Factors on the System Level addresses questions on system design and training, such as: “How do I design the HMI?”, “How many operators do I need?”, “What happens if the system fails”, “How do I train the operators?” and “How do I certify them?”, “Who should be responsible for a specific task”, “How do I make sure the operators work as a team?”, “How can I avoid loss of skills?” Human Factors on the System Level takes very much a top-down perspective.
* Human Factors on the Human Performance Level addresses questions on awareness and workload, such: “Is the operator aware of what’s happening?”, “How to make sure the operator is not overloaded?”, “What is the effect of stress on work and beyond?”, “How reliable will the operator work?”, “How can I reduce the effects of errors?”, “Does the user trust the system?”, “Which information does the user need to solve a problem?”. This level corresponds to a bottom-up perspective.

## Status of development

With reference to the outcomes of the IALA Workshop on Human Factors and VTS, VTS Committee has drafted an initial document that highlights several specific areas for further development. These include: Human Performance; Equipment and Ergonomics; Environment; Procedures; Organisation and Responsibility; and Training and Development



The proposal is to have each element presented as a chapter in the guideline, subdivided for key elements. Further detail is provided in Annex A.

# ACTION REQUESTED

Members of the VTS Committee are requested to

1. Forward this document to Human Factor experts for review and comment.
2. Provide input to VTS48 which will then be considered in the development of the IALA Guideline on Human Factors.
3. Key words proposed for each chapter
4. HUMAN PERFORMANCE

* Situational Awareness
* Attitude
* Commitment
* Abstract Thinking
* Stress
* Fatigue
* Complacency
* Health and Safety
* Distraction
* Decision Making
* Error/Conflict Management
* Communication
* Working with IT
* Multi-Tasking
* Teamwork
* Workload
* Vigilance
* Complexity of Tasks
* Procedures
* Processes
* Assigned Duties

1. ERGONOMICS & EQUIPMENT

* Scanning information
* Colours, displays, alerts and so forth
* Clothing / Uniforms
* User friendly design
* Human-Machine Interface.

1. ENVIRONMENT

* Workspace
* Light, noise, furniture, climate
* Fairway, traffic, current, weather and so forth
* Nutrition, adequate facilities

1. PROCEDURES

* Communication
* SOPs (both routine and emergency)
* Health and Safety
* Medical standards
* Working hours, Shifts, Rest hours
* How long can you work on a screen
* Reporting incidents and accidents

1. ORGANISATION ROLES AND RESPONSIBILITIES

* Staffing
* Selection
* Training, Education & Certification
* Appraisal & Assessment
* Quality management system (audits)
* Safety management system
* Safety culture
* Housing, equipment & availability

1. TRAINING and DEVELOPMENT

* Training road map
* Appraisal
* Team development
* External courses (development)
* Reference to V103/5