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Working Party on Inland Water Transport

Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation

Fifty-sixth session

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Item 10 of the provisional agenda

Mutual recognition of boatmasters' certificates and harmonization of professional requirements in inland navigation

Revision of resolution No. 31: Standards of competence for: sailing on inland waterways with a maritime character; sailing with the aid of radar; passenger navigation experts and liquefied natural gas experts

Note by the secretariat*

Mandate

1. This document is submitted in line with the Proposed Programme Budget for 2020, part 5, Regional cooperation for development, section 20, Economic Development in Europe. Programme 17, Economic Development in Europe (A/74/6 (Sect. 20) and Supplementary).
2. At its fifty-fourth session, the Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation decided to consider updating the Recommendations on Minimum Requirements for the Issuance of Boatmaster's Certificates in Inland Navigation with a view to their Reciprocal Recognition for International Traffic (resolution No. 31, revised) and asked the secretariat to hold consultations with the European Committee for drawing up standards in the field of inland navigation (CESNI) on this issue (ECE/TRANS/SC.3/WP.3/108, paras. 37-38).
3. In 2018, CESNI adopted a set of standards for qualifications in inland navigation professional requirements, called the European Standard for Qualification in Inland Navigation (ES-QIN).** Annexes I–IV to this document contain the standards of competence for (a) sailing on inland waterways with a maritime character, (b) sailing with the aid of radar, (c) passenger navigation experts and (d) liquefied natural gas (LNG) experts*** which could be used as the basis for updating resolution No. 31.

* This document was scheduled for publication after the standard publication date owing to circumstances beyond the submitter's control.

** www.cesni.eu/en/documents/es-qin-2018.

*** See ES-QIN, Part I "Standards for competences", chapters 3–6.

Annex I

Standards of competence for sailing on inland waterways with a maritime character (Resolution CESNI 2018-II-6)

1. The boatmaster sailing on inland waterways with a maritime character shall be able to work with up-to-date charts and maps, notices to skippers and mariners and other publications specific to waterways with a maritime character.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
use information supplied from specific nautical information sources and rules applicable for inland waterways with a maritime character.	<ol style="list-style-type: none"> 1. Knowledge of use of nautical charts and maps of inland waterways with maritime character. 2. Ability to use and correctly apply charts and maps of inland waterways with maritime character for considering factors relating to accuracy of chart reading such as chart date, symbols, soundings, bottom description, depths and datum's and international charts standards such as ECDIS. 3. Knowledge of terrestrial and satellite navigation for determination of dead reckoning, piloting, coordinates, geodetic latitude and longitude, horizontal geodetic datum, difference of latitude and longitude, distance and speed over ground, directions on the earth, course, course over ground, compass course corrected with the drift as the result of wind direction and force, heading and bearing, determination of the course, determination of the course with wind and current effect, determination of the course with effect of current and plotting position sailing on route and bearings. 4. Ability to use notices to skippers and mariners and other information services such as sailing directions, planning guides, light lists, maritime safety information (MSI). 5. Knowledge of traffic regulations applying on inland waterways with maritime character including relevant parts of the International Regulations for Preventing Collisions at Sea. 6. Knowledge of rules applying in emergency situations on inland waterways with a maritime character. 7. Ability to use maritime equipment foreseen by specific regulation.

2. The boatmaster sailing on inland waterways with a maritime character shall be able to use tidal datums, tidal currents, periods and cycles, the time of tidal currents and tides and variations across an estuary.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
respect tides, tidal, weather forecast and conditions before casting-off and when sailing.	<ol style="list-style-type: none"> 1. Knowledge of publications and information for predicting tides and currents, such as, tide tables, tide prediction for subordinate stations, information on ice, high/low water levels,

COLUMN 1
COMPETENCE

COLUMN 2
KNOWLEDGE AND SKILLS

berths and port directories for determination of water level, current direction and force and available depth.

2. Knowledge of effects of weather conditions, the shape of land and other factors on tidal currents.

3. Ability to determine the impact of tidal level, current, weather conditions and waves, on the planned voyage for safe navigation.

3. The boatmaster sailing on inland waterways with a maritime character shall be able to use SIGNI (Signalisation des voies de navigation intérieure) and IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) for safe navigation on inland waterways with a maritime character.

The boatmaster shall be able to:

COLUMN 1
COMPETENCE

COLUMN 2
KNOWLEDGE AND SKILLS

use SIGNI (Signalisation des voies de navigation intérieure), IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) or other local marking and signal systems.

1. Knowledge of buoyage, IALA, region A, marking and signal systems such as buoyage direction, numbering, marking of objects and superstructures, lateral and cardinal markings, bifurcations buoys, supplementary marks, marking of danger points and obstacles, marking the course of the fair way as well as channel, entrances of harbours, buoyage and illumination and characteristics of illumination.

2. Ability to use the marking and signal systems to determine the appropriate crafts position in the waterway with respect to local circumstances and conditions.

Annex II

Standards of competence for sailing with the aid of radar (Resolution CESNI 2018-II-7)

1. The boatmaster sailing with the aid of radar shall be able to take appropriate action in relation to navigation with the aid of radar before casting off.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
prepare the start of a journey and use of navigational radar installations and rate-of-turn indicators for navigation especially in reduced visibility conditions.	<ol style="list-style-type: none"> General knowledge of radio waves and knowledge of the principles of radar operation and more specifically the propagation velocity of radio waves, reflection of radio waves, key parameters of navigational radar installations (operating frequency range, transmission power, pulse duration, rate of antenna revolutions, characteristics of the antenna, display dimensions and range scales, minimum range, radial resolution and azimuthal resolution etc.). General knowledge of the working principle of rate-of-turn indicators and their application. Ability to switch on, adjust and control navigational radar installations such as Tune, Gain, Brilliance, On/Standby, Range and to use rate-of-turn indicators in inland navigation and assure correct use.

2. The boatmaster sailing with the aid of radar shall be able to interpret radar display and analyse the information supplied by radar.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
interpret the radar display correctly with respect to own and other craft positions;	<ol style="list-style-type: none"> Ability to interpret the radar display by correctly identifying the position of the antenna on the screen and heading line, setting of position, course and turning direction of the own craft, determining distances and reach. Ability to interpret the behaviour of other traffic participants (stationary craft, oncoming craft and craft heading in the same direction).
analyse other information supplied by radar.	<p>Ability to analyse the information supplied by radar such as heading line (HL), electronic bearing line (EBL), range rings and variable range marker (VRM), target trails, decentering, parallel lines (P-Lines) and to explain the radar picture.</p> <p>Knowledge of the limitation of information supplied by navigational radar installations.</p>

COLUMN 1
COMPETENCE

COLUMN 2
KNOWLEDGE AND SKILLS

Ability to interpret stationary and moving objects displayed on the radar.

3. The boatmaster sailing with the aid of radar shall be able to reduce interference of varying origin.

The boatmaster shall be able to:

COLUMN 1
COMPETENCE

COLUMN 2
KNOWLEDGE AND SKILLS

identify and reduce disturbances coming from the own craft;

Knowledge of disturbances which might be caused by break-up or split of the antenna beam, by shadowing effects (blind sectors) or by multiple reflections (e.g. in the area of the loading compartments).

Ability to take action to reduce disturbances coming from own craft.

identify and reduce disturbances coming from the environment;

Knowledge of disturbances from rain or waves, scattered fields (e.g. bridges), multiple reflections, false/ghost echoes, power transmission lines, radar shadowing and multipath propagation effects.

Ability to take action to reduce disturbances coming from the environment (by using Anti-Rain Clutter (FTC) and Anti-Sea Clutter (STC)).

identify and reduce disturbances coming from other radar navigation installations.

Knowledge of appearance of disturbances caused by other navigational radar installations.

Ability to take action to remove disturbances coming from other navigational radar installations (interference rejection/IR).

4. The boatmaster sailing with the aid of radar shall be able to navigate by radar taking into account the agreed set of rules applicable to inland navigation and in accordance with the regulations specifying the requirements for navigating by radar (such as manning requirements or technical requirements for vessels).

The boatmaster shall be able to:

COLUMN 1
COMPETENCE

COLUMN 2
KNOWLEDGE AND SKILLS

apply rules governing the use of radar.

Knowledge of specific rules for radar use in the agreed set of rules applicable in inland navigation and in applicable police regulation (e.g. sailing in situations with reduced visibility, use of radar when visibility is not reduced and mandatory radar use when sailing), use of VHF, sound signals and agreements on course to steer.

Knowledge of technical requirements of craft using navigational radar installation according to the applicable technical requirements such as ES-TRIN (European Standard laying down Technical Requirements for Inland Navigation vessels).

Ability to use correctly navigational radar installation, rate-of-turn indicators and Inland ECDIS combined with radar.

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
	<p>Knowledge of the crewing requirements in situations with reduced visibility and good visibility.</p> <p>Ability to adequately attribute tasks to crew members and give appropriate instructions.</p>

5. The boatmaster sailing with the aid of radar shall be able to handle specific circumstances, such as density of traffic, failure of devices, dangerous situations.

The boatmaster shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
<p>react appropriately in exceptional circumstances such as high traffic density, failure of devices and other unclear or dangerous traffic situations.</p>	<p>Knowledge of possibilities to react in high traffic density.</p> <p>Ability to take appropriate measures in high traffic density.</p> <p>Knowledge of mitigation measures and adequate reaction patterns in case of failure of devices.</p> <p>Ability to react in case of failure of devices.</p> <p>Knowledge of possible actions to be taken in case of any unclear or dangerous traffic situations.</p> <p>Ability to react in case of any unclear or dangerous traffic situation.</p>

Annex III

Standards of competence for passenger navigation experts (Resolution CESNI 2018-II-5)

1. The expert shall be able to organize the use of life-saving equipment on board passenger vessels.

The expert shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
1. organize the use of life-saving equipment.	<p>Knowledge of safety control plans including safety rota and safety plan, emergency plans and procedures.</p> <p>Knowledge of life-saving equipment and its functions and ability to demonstrate the use of life-saving equipment.</p> <p>Knowledge of areas accessible to passengers with reduced mobility.</p> <p>Ability to demonstrate the use of life-saving equipment for passengers including passengers with reduced mobility.</p>

2. The expert shall be able to apply safety instructions and take the necessary measures to protect passengers in general, especially in the event of emergencies (e.g. evacuation, damage, collision, running aground, fire, explosion or other situations which may give rise to panic) including providing direct assistance to disabled persons and persons with reduced mobility in accordance with training requirements and instructions of Annex IV to Regulation (EU) No 1177/2010.

The expert shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
apply safety instructions;	<ol style="list-style-type: none"> 1. Ability to monitor the safety systems and equipment and to organize checks and control of the passenger vessel safety equipment including breathing apparatus. 2. Ability to conduct exercises on emergency situations. 3. Ability to instruct crew members and shipboard personnel having a role according to the safety rota on the use of life-saving equipment, escape routes, muster areas and evacuation areas in the case of an emergency. 4. Ability to provide information to passengers at the beginning of the voyage on the code of conduct and contents of the safety plan.
take necessary measures to protect passengers in general and in emergency situations;	<ol style="list-style-type: none"> 1. Ability to implement safety rota planning for evacuation of parts of the vessel or of the entire vessel, taking into account different emergency situation (e.g. smoke, fire, leakage, danger to vessel stability and dangers arising from cargo transported on board). 2. Knowledge of the principles of crisis and crowd management and conflict management.

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
provide assistance and give instructions so that disabled persons and passengers with reduced mobility can embark, stay on board and disembark safely.	<p>3. Ability to provide necessary information to boatmaster, passengers and external rescue forces</p> <p>1. Knowledge of accessibility of the vessel, areas on board suited for disabled persons and persons with reduced mobility including their specific needs with regard to e.g. escape routes and correct designation of such areas in safety plans.</p> <p>2. Ability to implement rules on non-discriminatory access and safety rota planning for disabled persons and persons with reduced mobility and all training requirements referred to in Annex IV to Regulation (EU) No 1177/2010.</p>

3. The expert shall be able to communicate in elementary English.

The expert shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
communicate safety related issues in elementary English.	<p>1. Knowledge of elementary English vocabulary and pronunciation of wording suited to guide all persons on board in standard situations and to alert and guide them in the event of emergencies.</p> <p>2. Ability to use elementary English vocabulary and pronunciation of wording suited to guide all persons on board in standard situations and to alert and guide them in the event of emergencies.</p>

4. The expert shall be able to meet the relevant requirements of Regulation (EU) No. 1177/2010.

The expert shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
provide assistance to passengers concerning passenger rights.	<p>1. Knowledge of rules for inland waterway transport established by Regulation (EU) No 1177/2010, in particular as regards the non-discrimination between passengers with regard to transport conditions offered by carriers, the rights of passengers in cases of cancellation or delay, the minimum information to be provided to passengers, the handling of complaints and the general rules on enforcement.</p> <p>2. Ability to inform passengers on the applicable passenger rights.</p> <p>3. Ability to implement applicable procedures to provide access and professional assistance.</p>

Annex IV

Standards of competence for liquefied natural gas experts (Resolution CESNI 2018-II-8)

1. The expert shall be able to ensure compliance with legislation and standards applicable to craft that use LNG as fuel, as well as with other relevant health and safety regulations.

The expert shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
ensure compliance with relevant legislation and standards applicable to craft using LNG as fuel;	<p>Knowledge of regulations relating to craft using LNG as a fuel such as relevant police regulations, relevant regulations on technical requirements and ADN.</p> <p>Knowledge of classification society rules.</p> <p>Ability to instruct and monitor crew member operations in order to ensure compliance with legislation and standards applicable to craft using LNG as a fuel on board the craft and in particular with the bunkering procedure.</p>
ensure compliance with other relevant health and safety regulations when sailing and moored.	<p>Knowledge of relevant health and safety regulations including relevant local requirements and authorizations in particular in port areas.</p> <p>Ability to instruct and monitor crew member operations in order to ensure compliance with other relevant health and safety regulations.</p>

2. The expert shall be able to be aware of specific points of attention related to LNG, recognize the risks and manage them.

The expert shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
recognize specific points of attention related to the specific characteristics of LNG;	<p>Knowledge of definition, composition and quality attributes of LNG, Safety Data Sheet (SDS): physical properties and characteristics of the product and environmental characteristics.</p> <p>Knowledge of</p> <p>the adequate storage temperature,</p> <p>flashpoint,</p> <p>explosion limits and pressure characteristics,</p> <p>critical temperatures,</p> <p>related hazards,</p> <p>atmospheric conditions,</p> <p>cryogenic properties,</p> <p>the behaviour of LNG in air,</p> <p>boil-off and</p> <p>inert gas e.g. nitrogen.</p>

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
recognize risks and manage them.	<p>Knowledge of safety plans, hazards and risk, including knowledge of muster list and its related safety tasks.</p> <p>Ability to conduct risks management, to document on-board safety (including safety plan and safety instructions), to assess and control dangerous areas, fire safety and to use personal protective equipment.</p>

3. The expert shall be able to operate the systems specific to LNG in a safe way.

The expert shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
operate the systems specific to LNG on-board and connected to on-board systems in a safe way.	<p>Knowledge of technical aspects of the LNG system such as general configuration and operating manual,</p> <p>LNG bunkering system,</p> <p>spill control equipment,</p> <p>LNG containment system,</p> <p>gas preparation system,</p> <p>LNG pipe system,</p> <p>gas supply system,</p> <p>engine room concept,</p> <p>ventilation system,</p> <p>temperature and pressure (how to read a pressure and temperature distribution chart),</p> <p>valves (in particular, the main gas fuel valve), pressure relief valves,</p> <p>control, surveillance and safety systems, alarms, gas detection and dry breakaway couplings.</p> <p>Ability to present the mode of action of LNG, read pressure and temperature, operate stripping, containment, gas supply, ventilation, pipe and safety systems, valves and to manage boil-off of LNG.</p>

4. The expert shall be able to ensure regular checking of the LNG system.

The expert shall be able to

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
perform and monitor regular checks of the LNG system.	<p>Knowledge of maintenance and monitoring of the LNG system.</p> <p>Knowledge of possible malfunction and alarms.</p> <p>Ability to perform daily maintenance, weekly maintenance, regular periodic maintenance, to correct malfunctions and to document maintenance work.</p>

5. The expert shall be able to know how to perform LNG bunkering operations in a safe and controlled manner.

The expert shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
perform and monitor bunkering procedures in a safe way.	<p>Knowledge of</p> <p>identification marking in line with relevant police and port regulation,</p> <p>conditions for berthing and moorage for bunkering purposes, LNG bunkering procedure,</p> <p>purging of the LNG system,</p> <p>relevant checklists and delivery certificate,</p> <p>bunkering safety measures and evacuation procedures.</p> <p>Ability to start and monitor bunkering procedures including measures to guarantee safe mooring, correct position of cables and pipes in order to avoid leakage and to take measures to safely disconnect LNG and bunkering connection if needed at any time.</p> <p>Ability to ensure compliance with relevant safety zone regulations.</p> <p>Ability to report start of bunkering procedure and to perform safe bunkering according to manual including ability to monitor pressure, temperature and LNG level in tanks.</p> <p>Ability to purge pipe systems, to close valves and disconnect craft from bunkering installation and to report end of procedure after bunkering.</p>

6. The expert shall be able to prepare the LNG system for craft maintenance.

The expert shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
prepare the LNG system for craft maintenance and for renewed use.	<p>Knowledge of correct purging procedures such as use of drainage of gas and flushing of LNG system prior to shipyard stay.</p> <p>Ability to perform</p> <p>inerting of the LNG system,</p> <p>LNG fuel tank drainage procedure,</p> <p>first filling of LNG fuel tank (drying and cooldown),</p> <p>entry into service following a shipyard stay.</p>

7. The expert shall be able to handle emergency situations related to LNG.

The expert shall be able to:

<i>COLUMN 1 COMPETENCE</i>	<i>COLUMN 2 KNOWLEDGE AND SKILLS</i>
<p>react appropriately in emergency situations (such as LNG spills and leaks, skin contact with low temperature substance, fire, incidents related to transport of dangerous goods with specific hazards or craft running aground).</p>	<p>Knowledge of emergency measures and on-board safety documentation (including the safety plan and safety instructions).</p> <p>Ability to react appropriately in case of emergencies such as on-deck LNG spills, skin contact with LNG, LNG spills in closed spaces (e.g. in engine rooms), LNG spills or natural gas leaks in inter-barrier spaces (e.g. double-walled fuel tanks, double-walled pipes), fire in the vicinity of LNG fuel tanks or in the engine rooms, pressure built up in pipe systems after Emergency Shut Down activation in case of imminent release or venting.</p> <p>Knowledge of specific hazards related to the transport of dangerous goods and craft running aground or colliding.</p> <p>Ability to take emergency measures and remote surveillance emergency measures e.g. to properly control LNG fire, pool, jet and flash fire.</p>
