

Third expert meeting on LNG as bunker fuel in relation to the Sustainable Waterborne Transport Toolbox

Brussels, 2012-12-04



European Maritime Safety Agency

Agenda

- 09:00 – 09:30 Registration and opening (DG MOVE)
- 09:30 – 09:45 State-of-play of tender for a study on rules and standards for LNG bunkering (EMSA)
- 09:45 – 10:30 Presentation of Task 1 and 2 of the EMSA tender (GL)
- 10:30 – 11:00 Coffee Break
- 11:00 – 12:00 Discussion regarding Task 1 and 2
- 12:00 – 12:30 Presentation of Task 3 of the EMSA tender (GL)**



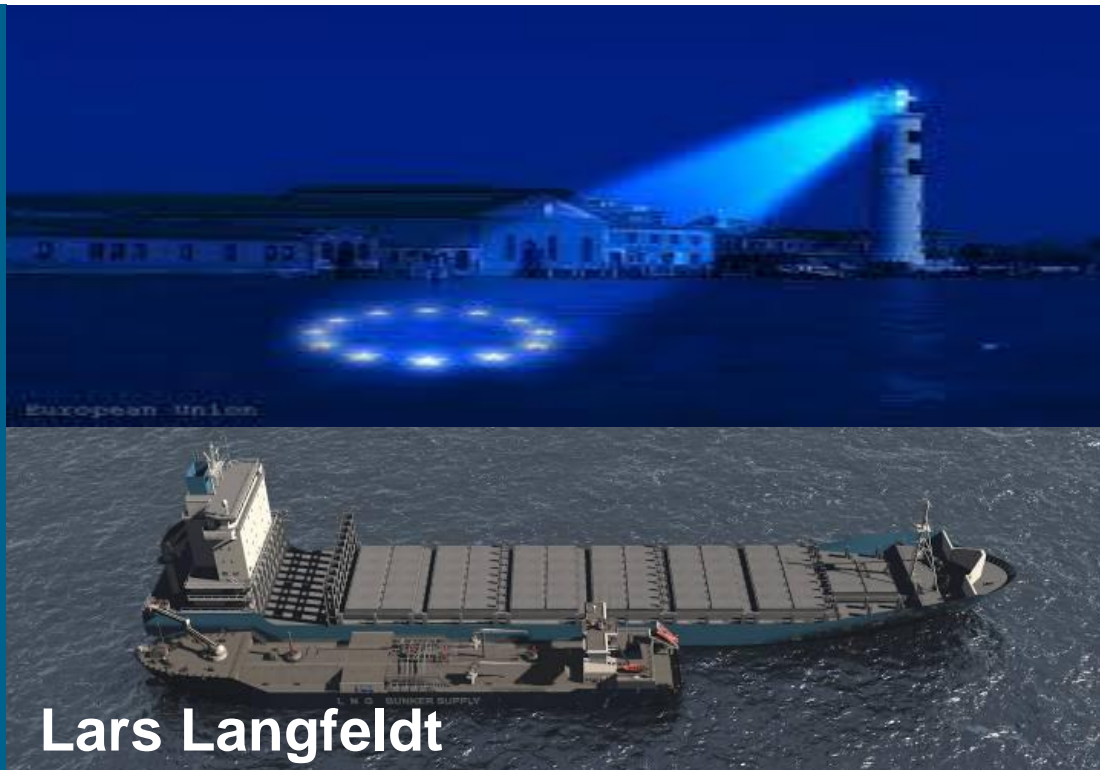


Germanischer Lloyd

Standards and rules for bunkering of gas fuelled ships

- Task 3: Possible common EU standard for bunkering LNG -

Brussels, 2012-12-04



Outline

- How to deal with the identified regulatory gaps?
 - Regulatory gaps already in discussion
 - Suitable extension of the ongoing rule development
 - Possible need for further guidance
- Possible common EU regulation
- Summing up and recommendations



How to deal with the identified gaps?

- A number of regulatory gaps regarding bunkering LNG have been identified
- These gaps are related to all aspects of the LNG bunkering process from
 - technical,
 - operational up to
 - organisational matters
- On the other hand a number of Working Groups have been established which are already working on some of these items e.g.
 - IMO Sub-committee on Bulk, Liquids and Gases (BLG)
 - ISO Technical Committee 67 Working Group 10
 - Working Groups established by CCNR
 - LNG Working Group of the IAPH



How to deal with the identified gaps?

With respect to the ongoing developments the identified regulatory gaps could be handled by the

- ***Back up*** of established Working Groups already dealing with some of the identified gaps
- ***Extension*** of the scope of existing Standardization Committees
- ***Development*** of further guidance by standards and guidelines



Regulatory gaps already in discussion

Permission of LNG as cargo and fuel for inland vessels

- Working group established by the CCNR to provide regulations for inland vessels operating with natural gas as fuel
 - Working group established by the CCNR to provide regulations for inland vessels carrying LNG as cargo
 - **The current intentions of the Central Commission of the Navigation of the Rhine should be forced up** resulting in the
 - **modification** of the “European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (**ADN**)” and
 - **modification** of the “Rhine Vessel Inspection Regulation (**RVIR**)”
- These gaps are foreseeable solved within existing standardization projects

Suitable extension of the ongoing rule development

Specification of LNG as fuel

- The composition of LNG affects the *safe and economical operation* of gas fuelled engines
 - Therefore *minimum requirements for the composition* of the main compounds and the methane number should be addressed
 - The *existing standards for marine fuels* are
 - “ISO 8216 Classification of marine fuels”
 - “ISO 8217 Specifications of marine fuels”
 - The Responsible Working Group is the ISO TC 28 SC4 “WG 6 Classification and specification of marine fuels”
 - **But:** The scope is limited to petroleum based fuels
- Extension of the scope of the TC 28 to LNG as fuel reasonable



Suitable extension of the ongoing rule development

Communication Link between LNG bunker facility and receiving ship

- A standard for the equipment for the ***connection of communication devices and process monitoring*** should be developed
- The functional requirements of this link have been addressed within the LNG bunker guidelines of ISO TC 67 WG 10 (currently under development)
- ***More detailed*** requirements of the link system could be considered during the ISO TC 67 WG 10 work similar to requirements of the presenting flange
- The principal requirements should be based on best practice guidance e.g. SIGTTO “ESD Arrangements & linked ship / shore systems for liquefied gas carriers”



Suitable extension of the ongoing rule development

Guidelines for LNG bunker stations

- ***Existing standards and guidelines*** have been used for the design, construction and permission for LNG terminals
- ***Additional safety requirements*** for LNG bunker stations should be addressed
- The ***extension of the existing standards*** for the design, construction and operation of LNG terminals regarding LNG bunker stations should be verified e.g.:
 - EN ISO 28460 Ship-to-shore interface and port operations
 - EN1473 Design of Onshore Installations
 - EN 13645 Design of onshore installations with a storage capacity between 5 t and 200 t

Possible need for further guidance

Portable LNG fuel tanks

- The IGF Code sets requirements for portable LNG fuel tanks regarding
 - Design criteria
 - Location
 - Connection to the ship system
 - Pressure relief, control, monitoring system
- ***The connection and disconnection process is defined as part of the bunkering process*** and must be finalised prior to ship departure
- No guidelines for the connection and disconnection process are in discussion within the current developments
- ***Guidelines*** for the safe “Connection and disconnection process of portable LNG fuel tanks” ***should be developed***

Possible need for further guidance

Sulphur content of LNG

- LNG must comply with ***requirements for the sulphur content*** stated in MARPOL Annex VI Chapter 3, regulation 14
- The verification of the fuel oil quality as stated in MARPOL Annex VI Chapter 18 do not apply to LNG
- ***Common procedures*** for the measurement of the sulphur content of LNG are ***missing***

→ Guidelines for the “Measurement of the sulphur content of LNG as fuel” should be developed

Possible need for further guidance

Sampling of LNG

- Sampling of LNG is a safety related aspect due to the handling of LNG by crew members
- To ensure safe handling of LNG during ***sampling guidelines*** should be developed

Gas measurement

- For the procedures and equipment of the gas measurement during LNG bunkering no standards are available
- Guidelines for “***Procedures and equipment for gas measurement***” should be developed

Possible need for further guidance

Environmental aspects

- The release of gas during the normal LNG bunkering operation due to purging, pressure release etc. should be minimized for environmental reasons
 - This minimum requirements have been addressed within the ISO TC 67 WG 10 guidelines
 - Due to the varieties of different LNG bunker processes due to
 - tank types
 - bunkering with and without vapour return
- **Guidelines** for the “Reduction of potential negative environmental impacts related to possible methane release” should be developed

Possible common EU regulation

Legal binding definitions

- No legal binding standard for the bunkering of gas fuelled ships is in force or in development
- To enforce the existing standards and guidelines under development a high level standard can build the regulative framework and ***provide the legal binding character***.
 - the legal binding definition of the bunkering process
 - the conceptual delineation between transfer of LNG as cargo and bunkering of LNG as fuel

Possible common EU regulation

Harmonization of the permission process

Following open items should be addressed within a possible standard:

- Common criteria for the risk assessment approach and risk acceptance criteria for LNG bunker procedures
- Common safety distances to the bunkering process
- Common safety accreditation criteria for LNG bunker companies
- Additional measures related to LNG bunker operations within emergency plans

Possible common EU regulation

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I - Environmental requirements for bunkering process

J - Annexes

Possible common EU regulation

Draft common EU standard for bunkering gas fuelled ships

D - Terms and Definitions

Definition of bunkering and transfer of LNG, begin and end of the bunkering process, reference to ISO standard due to specifications of LNG as (marine) fuel

G - Port specific requirements

Emergency plan and safety distances

H - Technical and organisational requirements for bunkering

Risk assessment and risk acceptance criteria, guidelines for sampling, portable tanks , measurement of sulphur content

I - Environmental requirements for bunkering process

J - Annexes

Possible common EU regulation

Draft common EU standard for bunkering gas fuelled ships

→ Short look on the document

Summing up and recommendations

A common EU wide standard for bunkering LNG could provide

- Legal binding rule framework
- Legal binding definitions for the bunkering process
- Requirements for a common EU wide permission process regarding
 - Common risk assessment approach and risk acceptance criteria
 - Common safety distances to the bunkering process
 - Common accreditation criteria for LNG bunker companies
 - Additional measures within emergency plans





Summing up and recommendations

Ongoing developments should be forced up or extended

- The current intentions of the Central Commission of the Navigation of the Rhine **CCNR** should be backed up to enable the LNG cargo transport and use of gas as fuel for Inland vessels
- The scope of the **ISO TC 28** regarding the specification of marine fuels should be extended from petroleum based fuels to LNG
- The **extension of existing standards** for the design, construction and operation of LNG terminals regarding LNG bunker stations should be verified

Summing up and recommendations



Further standards and guidelines should be developed

- A standard for the equipment for the connection of communication devices and process monitoring should be developed
- Further guidelines should be developed:
 - “Connection and disconnection process of portable LNG fuel tanks”
 - “Measurement of the sulphur content of LNG as fuel”
 - “Sampling of LNG as fuel”
 - “Procedures and equipment for gas measurement”
 - “Reduction of potential negative environmental impacts related to possible methane release”



Many thanks for your attention!

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Agenda

12:30 – 13:30 **Lunch**

13:30 – 14:00 Views on task 2 and 3 by a member state

14:00 – 14.30 Views on task 2 and 3 by a port

14:30 – 15:00 Coffee Break

15:00 – 15:45 View on task 2 and 3 of different representatives

15:45 – 16:15 Latest development on the ISO TC 67 WG 10

16:15 – 17:00 Final discussion, summing up and closing

