

MEETING MINUTES
LNG TASK FORCE
BRUSSELS
7th SEPTEMBER 2011

I. WELCOME & INTRODUCTIONS

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1. Chairman Dijkhof welcomed the participants, who did a brief round of self-introductions. The intention of the Task Force is to prepare the necessary amendments to be introduced into ECE R 110 in order to certify LNG systems to be installed on road vehicles.

II. Review of the kick-off meeting: 16 May 2011, Brussels

2. There is a brief discussion of logistics and how to proceed with the business of the TF.
3. Specific technical issues of concern were addressed:
 - Pressure differences with the same connections
 - Components that are new to the regulation (vaporizer, blow-off valve, etc.)
 - Will there be new additions to the ISO language or amending the text now in place
4. Presentation on Progress of ISO LNG Standards (Peter Murray, Chart) (see document LNG-1-03)
4. Mr. Murray identified a variety of standards applicable to LNG systems/components, including TPED (Transportable Pressure Equipment Directive) – EU; DOT4L – UK; 49 CFR – USA; NFPA 52/57 – USA; CGA S-1.1 & 1.2 – USA; SAE J2343; and various product manuals. He presented inconsistencies between these for various testing requirements and as well as inconsistencies within the ISO 12991 DIS (i.e. the need to change the acceleration testing requirements in current ISO 12991 draft, inconsistencies with bonfire testing, etc).
5. Mr. Murray summarized the substance of ISO TC220-SC12991 (DIS), which is in the final stages of voting. There are 12 members and 6 positive votes are needed for passage.
6. Mr. Murray encouraged TC22/SC25 to be aware of and involved in the other ISO LNG work.
7. Mr. Bassi (SINTESI) said that some LNG component specifications would be the same as the ones used in CNG systems. He proposed to clearly identify those components in order to clarify what would remain unchanged.

III. DISCUSSION ON THE LAYOUT OF THE NEW LNG PART OF THE ECE R110 COMPLETE NEW PART BEHIND THE CURRENT REGULATION.

8. There was a broad discussion about how best to format and include the LNG requirements into the exiting Regulation 110. Mr. Bassi advocated that, because it is so difficult to amend R.110, that the new LNG components be put into a separate

regulations of its own and include language in R.110 for those components that are the same for the LNG regulation as for the CNG.

9. After some discussion between the participants, the group agreed that it would attempt to adapt the existing text of R.110 to reflect the applicability to LNG where needed. For equipment and issues dedicated specifically for the LNG system a new and separate Annex should be created (probably Annex 7).
10. Mr. Asman (DG Enterprise, European Commission) expressed concern about using ISO references that become European mandates. If references must be made to ISO standard then a specific date of each ISO standards should be noted. The Commission has a precedent of doing this but there is a concern that outside institutional standards do not force European member states to adopt something they have not had a chance to consider in a full vote. This could keep legislative text uncompromised and if the standard changes then the legislation/regulations could be amended referencing a new standard by its date.
11. Mr. Dijkhof summarized the decision to incorporate LNG language into the exiting R.110; create a separate annex in the case of specific LNG components and for new testing requirements that are appropriate for LNG but not necessarily for CNG; and to take into consideration the concerns of the Commission in referencing ISO standards in the ECE regulation.

IV. NEW REQUIREMENTS UNDER THE SCOPE AND DEFINITION

12. The group discussed making a clear distinction in the filling nozzles and receptacles to ensure that there can be no errors when connecting LNG systems working at different pressures. The problem identified is that this approach could start an unresolvable discussion as to which working pressure would be set the current filling units being used).
13. Mr. Murray indicated that there are systems at refuelling stations that could adapt the pressure of the fuel to the vehicle's required pressure. Mr. del Álamo confirmed that a fuelling station project in the Netherlands by Ballast Nedam will be capable of refuelling at both working pressures.
14. Mr. Murray suggested that the requirements should be temperature-based. Mr. Dijkhof agrees that this is a good idea since the current products are certified to temperatures and these can be referenced in any new document.
15. Mr. Murray asked whether biogas/biomethane being included. There was some brief discussion on the issue, noting that biomethane is included in the European legislation definitions with natural gas. Also, biomethane (including liquefied) can be included in any new definitions developed for the LNG to assure its inclusion.

V. REQUIRED CHANGES IN ECE 110 ANNEXES (refer to document LNG-TF-1-02)

16. There was a general discussion, line-by-line of the amendments required to the current R.110 text, that the index, scope (adding LNG), Annex 4D (pressure regulator), flow charts for CNG component classification (Fig. 1-1 & Fig. 1-2), etc should be properly updated.
17. Mr. Murray (Chart) suggested that the classification in the flow chart should be made not taking into account the state of the gas (liquid or compressed), but depending on the temperature, since this is the most critical difference.
18. The needs for new Annex 7 to be introduced were (besides tank specifications):
 - Pressure control regulator
 - Differential pressure gauge
 - Capacity fuel content gauge

- Heat exchanger – Vaporizer
 - Natural Gas detector
 - Gas temperature sensor
 - Some valves (Manual valve, automatic valve, pressure relief device)
19. Part I: under “Application for Approval” LNG adaptations included:
- Markings: adding a 4.4 for vessel markings (manufacturer, serial number, volume in water, the marking “LNG”, ISO 12991);
 - Specifications regarding CNG components needs adaptation to reflect LNG;
 - Conformity of production: also needs to reflect changes to be inserted in new Annex 7.
20. Part II (definitions), are changed not to reflect not only CNG but NG in general.
- Insertion of a new Class 5 – “Parts in contact with LNG or a temperature below -40 °C”
 - Definitions: needed to introduce the vaporizer
 - Distinguish between container (for CNG) or vessel (for LNG)
 - Change the existing definition for pressure regulator and pressure indicator
 - Change the filling unit receptacle
 - Definition of LNG itself (“a cryogenic liquid produced by reducing the temperature of natural gas to about -162°C at atmospheric pressure”)
 - Definition for CNG according to ISO 15500
 - Boil off management system (“system that controls the boil-off of gas under normal conditions”)
 - Addition of a definition of an “LNG system”, points 15, 16 and 17 are modified in order to make them applicable to LNG.
21. New Section 18: Requirements for installation of specific components for the use of Compressed Natural Gas (add) Liquefied Natural Gas
22. Leakage. The group discussed the suitability of specifying that an LNG and/or CNG system should have no leaks. The group agreed that specification makes no sense as long as it’s not accompanied by a method how to accurately measure, and a proper limit (xx cm³/h).
23. Work for the day completed at this point.

VI. NEXT MEETING: DATE AND VENUE

Brussels, Thursday 3rd November.

VII. ANY OTHER BUSINESS? No

VIII. MEETING CLOSE 17.00

Participants:

Paul Dijkhof
Jeffrey M. Seisler
Jaime del Alamo
Aldo Bassi
Andrew Whitehouse
John Crawford
Matthias Riemer
Bernd Reinauer
Jean-Louis Chazalotte
Peter Asman
Peter Murray

Chairman LNG Task Force - KIWA
Co-secretariat LNG Task Force – NGV Global
Co-secretariat LNG Task Force – NGVA Europe
SINTESI AB
Clean Air Power
Westport Innovations
Daimler Trucks
Daimler Trucks
Volvo 3P
European Commission/DG ENTR/Automotive Unit
Chart Industries