

**MEETING MINUTES**

**LNG TASK FORCE  
TELECONFERENCE MEETING  
3 JULY 2013  
16.00 CENTRAL EUROPE TIME  
VIA WEBEX CONNECTION**

**I. Introductions of Participants (see below)**

1. The group introduces itself.

**II. Automatic valve on the LNG tank: (something that exists for CNG, LPG and H2 but not included in R.110 amendments);**

2. The Dutch RDW felt strongly that, for LNG vehicles, an automatic valve should be installed directly on the LNG tank. Mr. Dijkhof provided a brief background of the issue and indicated that the LNG amendments could be in jeopardy if the directly mounted automatic shutoff valve is not included in the LNG amendments to R.110.
3. Peter Murray (Chart) indicated that he did not believe that the automatic shutoff valve is necessary to be mounted directly on the tank. It could be installed downstream of the heat exchanger which, in the US market, is required.
4. Mr. Dijkhof said that if the fuel lines between the LNG tank and the vaporizer are not covered by an automatic valve, the Dutch authorities are concerned that a potential leak could release the contents of the fuel tank..
5. There has been a bad experience with the excess flow valve that has not operated completely. The argument is that the same regulatory requirement exists for hydrogen and, therefore, should exist for natural gas.
6. Mihai Ursan (Westport) sees some potential for creating confusion if the automatic valve and manual valve must be present. The way the amendment is written now would appear that the excess valve, automatic valve and manual valve must be on each tank. (referencing text paragraph 8.13.1) He suggests if the automatic is intended as mandatory make it so; if the manual valve is optional it should be stated as such.
7. CNG cylinders tend to have a manual valve and automatic valve combined. But the automatic valve is used for shutoff and the manual valve is used for service. The CNG language is the same as used for LNG.
8. Mr. Ursan asked if there could be a choice of valve, with the manual valve optional because having a manual valve and automatic valve is redundant.
9. A question is raised if, for CNG, the valve is required to be on the tank. Mr. Murray said that the solenoid valve and shutoff valve can be mounted together, so the same might apply for LNG.

10. With the valves separated and the automatic valve shuts off, there still will be gas between the manual valve and automatic valve. The language is the same as for hydrogen.
11. If the automatic valve is first and the manual valve is after it, it might be possible to have gas between the two.
12. Diego Goldin (NGV Global) indicates that the difference between CNG and LNG is that CNG is fuelled through the fill line. LNG is fuelled through a separate connection so LNG would not operate like CNG.
13. For LNG the automatic valve would have to be directly at the opening of the tank inflow. LNG tanks have multiple access points, unlike CNG where there is one opening. Requiring automatic valves would require one on each opening.
14. Mr. Murray said that if the valve is inside the shrouded area it should be considered 'directly mounted' on the tank. But this is not what was intended by the amendment. Still, there are spaces in the pipe that might contain LNG.
15. The discussion continues with questions about the location of the automatic valve related to other components (and valves) where gas could build up in between the spaces between the valves if the valve is not mounted directly in the neck of the tank.
16. Mr. Murray indicated that the language could stipulate that the valve can be mounted 'as close as necessary' (or possible) or inside the protected zone.' It might not be possible to put multiple valves mounted in multiple locations.
17. LPG has some similarities with LNG: having input and output piping.
18. Mr. Del Alamo quotes R.67 for potential applicability to LNG valves that can be fitted to a line connected to the tank and vaporizer. (R. 67 Version 3, 17.9: remotely controlled shutoff valve for LPG.) The requirement would be upstream of the vaporizer and not downstream. 'The automatic valve shall be installed in the gas line from the LNG tank to the pressure regulator/vaporizer" specifying 'as close as possible' in the protected location (or area) (or position?) (as in R.67 section 18.6.2.) The notion of 'protected position' versus 'protected location'. But since 'protected position' is used already so it is more in line with other regulatory clauses. The idea is to prevent complete content of the LNG to be vented in case of an emergency and this language might not provide that.
19. It might be possible to add this also to the annex where the drop test is performed.
20. Mr. Murray indicated that if this language is adopted the vast majority of the LNG vehicles on the road would not be legal. (Chairman's additional comment: This also applies to the preliminary Dutch proposal for the shut-off valves to be directly mounted on the LNG tanks).
21. Question: Is it possible to use the definition of a tank that is included as part of the storage system, which would include the shroud on the tank and then specify that the valve needs to be as close as possible to the tank (or storage system).

22. Mr. Ursan adds that the installation on the 'line' should include 'fuel line' so there is no question about which line should include the automatic valve.
23. The suggested language is: "The automatic valve shall be installed in the fuel supply line, directly on the LNG tank or inside a protected position." This also is in line with regulation 67 for LPG, indicating that the valve must be installed as close as possible. (The LNG is part of the storage system.)
24. Mr. Dijkhof will prepare a brief description of how we reached the conclusion of the new language and it can be provided to the LNG TF and interested parties to see if there are any comments. Suggestions or remarks can be addressed at the next planned teleconference on 10<sup>th</sup> July.
25. 18.6.5 The manual valve can be integrated into the automatic cylinder valve. Mr. Ursan suggests that the manual valve might be eliminated. But, as with CNG, the manual valve can be used during servicing and then it is sure that there is no gas in the automatic valve. He suggested that the manual valve on the fuel supply line or the automatic valve is no longer serving any purpose.
26. At this stage Mr Dijkhof ended the conversation in favor of supplying the new language. Because other language prohibits LNG 'trapping' then this might not be needed, as suggested by Mr. Ursan. But Mr. Dijkhof will add this comment to the language that is distributed.

### **III. LNG in use with ADR (dangerous goods) vehicles (see attached explanatory paper**

27. Mr. Dijkhof announced that the meeting on the 16/17 July has been postponed to (likely) September. He asks the participants to supply him with information about LNG safety, especially related to diesel versus LNG.
28. Mr. DeAlamo asked why LNG-TF should be responsible for this. Mr. Dijkhof indicated that RDW contacted him for more information about LNG safety specifically regarding ADR certified vehicles. The WP15 seems to believe that gaseous vehicles are more dangerous than diesel vehicles. It's not a point directly to the LNG TF but was to Mr Dijkhof directly and he suggested that we get involved.
29. Mr. DeAlamo has received some requested similar questions about safety and they are also collecting safety information as well. He also has information about LNG safety that he can share.

Items IV-VI were not covered due to a lack of time. These can be addressed at the next teleconference (see item VII, below).

- IV. 80% fill stop on the LNG tank;**
- V. Protection against overfill/venting (in combination with 80% fill stop);**
- VI. Any other item with regards to LNG (if members have any other topics please send information in advance of the phone meeting)**
- VII. Next teleconference meeting**

30. Mr. Dijkhof suggested that we end at 18.00 although items IV and V were not covered. He has suggested that the next teleconference will be held on 10<sup>th</sup> July from 16.00-18.00. New 'coordinates' for this calls and identification numbers will be provided to the LNG TF so people can remark on what was accomplished today and prepare for further discussions next week.

**Participants**

Paul Dijkhof, Chairman (KIWA)  
Jeff Seisler Co-secretariat, (NGV Global)  
Jaime Del Alamo (NGVA Europe)  
Andrew Whitehouse (CAP)  
Jean-Louis Chazalotte (Volvo)  
Diego Goldin (NGV Global)  
Peter Murray (Chart)  
Francesco Cagnolotti (Landi-Renzo)  
Alberto Castagnini (AEB)  
Mihai Ursan (Westport)  
Jose Luis Perez Souto (IVECO)