

Memorandum

To: Industrial and Medical Gas Technical Committee (IMG), Vehicular Fuel Systems (VAF),

CC: Hydrogen Technology Technical Committee (HYD)

From: Carl Rivkin

Date: 7/13/2007

Re: Coordination of hydrogen storage system requirements among NFPA's IMG and VAF technical committees

The joint IMG/VAF Task group has held four meetings and has agreed on the following basic issues that will allow the committees to work together and develop material for the next editions of NFPA 55 and NFPA 52 in a consistent manor. The basic issues are as follows;

1. The task group evaluated the impact of implementing the NFPA Standards council decision that hydrogen storage systems are under the scope of the IMG committee and determined that this decision could be implemented (it was not technically or logistical impractical). Implementation would mean that requirements for the hydrogen storage systems that will appear in the next edition of NFPA 52 would be extracted from NFPA 55. From the code users perspective this extraction should have no impact. The user will find all of the requirements for vehicular fueling systems in NFPA 52 with the storage requirements integrated into the appropriate sections of NFPA 52 and identified as extract material from NFPA 55.
2. The task group agreed the definitions (shown below) of gaseous and liquefied hydrogen storage systems in NFPA 55 would define a hydrogen storage system.

-3.3.7 Bulk Hydrogen Compressed Gas System. An assembly of equipment, consisting of but not limited to, storage containers, pressure regulators, pressure relief devices, vaporizers, manifolds, and piping, with a storage capacity of more than 400 ft³ (scf) (11 m³) of compressed hydrogen gas including unconnected reserves on hand at the site. The bulk system terminates at the point where the gas supply, at service pressure, first enters the supply line. The containers are either stationary or movable, and the source gas is stored as a compressed gas.

-3.3.9 Bulk Liquefied Hydrogen Gas System. An assembly of equipment, consisting of but not limited to, storage containers, pressure regulators, pressure relief devices, vaporizers, manifolds, and piping, with a storage capacity of more than 39.7 gal (150 L) of liquefied hydrogen including unconnected reserves on hand at the site. The bulk system terminates at the point where the gas supply, at

service pressure, first enters the supply line. The containers are either stationary or movable, and the source gas is stored as a cryogenic fluid.

3. The task group agreed, based on the definitions shown above, that requirements on the application side of the source (*where the gas supply, at service pressure, first enters the supply line*) valve were the responsibility of the VAF committee and that the requirements on the storage side of (including the source valve) were the responsibility of the IMG committee. This delineation is shown graphically in the attached schematic drawings.

In addition to the basic issues agreed on Larry Fluer pointed out some more specific issues that group agreed need work and would work on cooperatively. They are as follows:

“Recommendations to TCs – changes needed in NFPA 52, 55 brought about by recognition that one or more controls identified in the process are in need of improvement. For example, the definition of “bulk hydrogen (compressed and liquefied) are in need of improvement. This need is identified as illustrated by the drawings, i.e., compressors, etc. The use of the term “vaporizer” in the definition of bulk hydrogen compressed gas systems is also questionable.

- The needs were recognized. The groups agreed to work cooperatively to identify those areas where shortcomings exist and to work for resolution.

- Coordination is needed between the groups. Although it is commonly recognized that liquid pumps and compressors are part of a bulk hydrogen system NFPA 55 controls are lacking. The work by the NFPA 52 committee in recognition of pumps and compressors points to the need to improve NFPA 55, however, any elements not currently prescribed in NFPA 55 should be coordinated with the NFPA 52 TC so that revisions work for both committees. The converse is also true.

- The needs were recognized. The groups agreed to work cooperatively to identify those areas where shortcomings exist and to work for resolution.”

As to the mechanics of implementing the Standards Council decision, the CGA has submitted proposals to both the IMG and VAF that address the issue of placing hydrogen storage system requirements, as extracted from NFPA 55, in NFPA 52. The committees will act on these proposals and the task group activity will be resumed, if needed, at the comment phase of the document revision process to address any outstanding issues.