COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS AND ON THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS

Sub-Committee of Experts on the Transport of Dangerous Goods (Twentieth session Geneva, 5-11 December 2001, Agenda item 2)

Report of the Working Group on Additional Provisions for the Transport of Gases

General

1. The Working Group on Additional Provisions for the Transport of Gases met from 3 December to 5 December 2001 under the chairmanship of Mr. H. Puype (EIGA). Representatives of Austria, Brazil, Canada, Czech Republic, France, Germany, Iran, Sweden, Spain, South Africa, Switzerland, the United Kingdom, the United States of America, ISO, AEGPL, CGA, and EIGA participated in the meeting.

2. The objective of the working group was to review the following documents: 2001/31 (USA), 2001/48 (EIGA) and informal documents INF.12 (AEGPL), INF.13 (Canada), INF.31 (Germany), INF.33 (UK), INF 34 (Canada), and papers (no numbers) from Sweden and three from the USA.

3. The annex to this report gives the text agreed by the Working Group. It is based on the EIGA document 2001/48 and changes from the text in the 12th Revision of the Model Regulations are shown by underline of new text.

Discussion on Proposed Provisions for Refrigerated Liquefied Gases

EIGA Proposal 1

4. It was agreed to re-instate the word "closed" before "cryogenic receptacles" to clarify that open receptacles, whilst in the scope of the UN Model Regulations, are not covered by requirements within the existing and proposed text where it relates to pressure receptacles. It was recognised that further work will be needed to provide requirements for open cryogenic receptacles, but since they are not pressure receptacles, the provisions for their use and construction would be separate sections.

5. The proposal from EIGA to restrict the application of ISO standard 11117:1998 to the protection of valves for cylinders only was rejected. The Working Group recognised that other standards detailing

performance requirements for valve protection would be required in the future to cover pressure receptacles other than cylinders when their construction standards were referenced in Section 6.2.2.

6. The derogation to allow specific repairs to cryogenic receptacles was restricted to the jackets of closed cryogenic receptacles.

7. With the above changes and several editorial changes, Proposal 1 by EIGA was agreed by the Working Group.

8. UN 3353 Air bag inflators, compressed gas or Air bag modules, compressed gas or Seat-belt pretensioners, compressed gas was deleted from the 12th Revision of the Model Regulations. Consequently, P202 should also be deleted.

9. ISO was asked to provide a written proposal detailing which cryogenic receptacle standards currently under development would be offered for inclusion where they should be referenced.

Proposal 2

10. Various editorial changes to clarify the text of the P 203 were adopted and the wording on test pressure was changed to that proposed by Canada in order to make it suitable for and relevant to a Packing Instruction.

11. The instructions for periodic inspection were put in square brackets for further discussion. The USA and Canada do not currently require periodic inspection for cryogenic receptacles in their national regulations. It was agreed that at the next meeting the inspections and tests which constitute the periodic inspection would be reviewed and a decision made whether such inspection is essential to safety.

12. The section on compatibility was reworded to generalise the requirement to all gases as well as covering the issue of oxidising gases.

13. The word carriage was replaced by transport and the Working Group recommended that a check be made throughout the Model Regulations to effect this same change.

14. The recommendation to change the packing instruction in the Dangerous Goods List to P203 for the refrigerated liquefied gases listed in EIGA proposal 2 was accepted, except for UN 2186 Hydrogen chloride, refrigerated liquid. This entry should be re-allocated to Packing Instruction P099 (Only packagings which are approved by the competent authority may be used). No expert in the Working Group had knowledge of the transport of UN 2186 in cryogenic receptacles. In consequence, the filling instruction for toxic gases was deleted from P203.

Proposal 3

15. Proposal 3 to introduce an orientation label on cryogenic receptacles was accepted subject to the following changes. The standard size was aligned with that specified by ICAO, but smaller or larger labels would be allowed if the size of the package so requires. Options were introduced allowing either red or black arrows and allowing a border. The two formats, with and without a border are to be shown.

16. The label for cryogenic liquids which is used in the IATA Dangerous Goods Regulations was discussed. The Working Group considered it would be inappropriate to include this label in the Model Regulations for the following reasons:

    - the label relates specifically to open receptacles which were not addressed in the current provisions;
    - the use of the green background would be misleading for flammable gases;
    - understanding the label's message depends upon the reader's knowledge of English;
    - the hazard and safety action are not adequately communicated to the untrained person.

Proposal 4

17. The Working Group developed clearer wording concerning the relationship between corrosion allowance and the calculation of wall thickness.

18. It was agreed to standardise on the word "jacket" to describe the outer envelope of the cryogenic receptacle, in line with the provisions for portable tanks, and delete the alternative "sheathing".

19. The provision that closed cryogenic receptacles should be designed to resist the service loads and fatigue is applicable to all pressure receptacles. It was therefore deleted and the necessary requirements were covered by adding to the text in the general requirement that covers all pressure receptacles. Similarly, the requirement to provide a capability for electrically earthing when transporting flammable gases was extended to all pressure receptacles.

20. The provision defining the acceleration loads on the receptacles which was copied from the portable tanks provisions was deemed to be adequately covered by the general requirements and the design and construction standard for closed cryogenic receptacles and was therefore deleted.

21. Provisions detailing requirements for low temperature properties for accessories and the lack of need for inspection openings were agreed to be unnecessary and were deleted.

22. The experts noted an inconsistent use of hyphens in the phrase "pressure relief device" (or pressure-relief device) and agreed to delete the hyphen.

23. The Secretariat was asked to replace all references to "safety valve" and "safety device"(where appropriate) with the phrase "pressure relief valve" and "pressure relief device"(no hyphen) e.g. in 6.7.4.9.1, 6.7.3.10.1 and 6.7.2.14.1.

24. The hazards associated with the premature bursting of frangible discs was debated at length. The Working Group proposed to allow the set pressure of frangible discs to be either at 150% of MAWP or at the test pressure, whichever is the lower, in order to provide sufficient allowance for the tolerance in frangible disc construction and to prevent it from operating near the range of the primary automatic pressure relief device.

25. Following a suggestion from Switzerland, the Working Group reviewed all provisions relating to pressure relief devices from the portable tanks section on refrigerated liquefied gases. Some were incorporated, others were deemed adequately covered by other provisions. One provision was criticised as being inappropriate, both for portable tanks and closed cryogenic receptacles. A proposal should be made to alter 6.7.4.6.4 and equivalent provisions for other portable tanks to replace "approved by the competent authority" by "as specified by the competent authority".

26. It was agreed that the provisions for pressure relief devices were inadequately covered. Further work is needed to consider marking, the insulating jacket and the relevant ISO and ICAO provisions. The expert from the USA agreed to submit an official proposal for the next session.

27. It was noted that the capacity calculations of pressure relief devices for closed cryogenic receptacles had to be covered by reference to two CGA publications. A CEN Standard covered the whole size range. These documents will be circulated for consideration by the Working Group. The CEN standard is being used as a base for the future ISO standard.

28. The text covering the initial inspection of closed cryogenic receptacles was amended to clarify the provisions for inspecting welds by referring to the applicable design and construction standard.

29. For periodic inspection the term "inspection body" was not deemed to correspond to actual practice. It was decided to replace it with "body authorised by the competent authority".

30. The requirement to mark the Maximum Permissible Gross Mass was considered unnecessary for closed cryogenic receptacles and was deleted. The Working Group noted that the specific marks for closed cryogenic receptacles may need additional review when the ISO standard is completed.

31. The Canadian proposal (Inf. 13) addressed the marking of the characters identifying the country where the periodic inspection and test was performed in order to provide traceability. Several proposals resulted from the discussion and the final one is given in square brackets in the annex to this report. Delegates will consider this and agree on a text at the next meeting of the Working Group.

32. The USA and Canada agreed to propose text detailing the characteristics and responsibilities of the body performing the periodic inspection and test. They would make a proposal taking into consideration the existing text in 6.2.2.5 and the European Transportable Pressure Equipment Directive, EIGA to provide a copy.

Discussion of Other Provisions

Proposal 2001/31(USA)

33. Paper 2001/31 was superseded by 3 tabled papers. One of the papers compared the ISO working draft on cryogenic receptacles with the CFR (DOT4L) and came to the conclusion that they could adopt the ISO standard.

34. A second paper concerning the standard ISO 4706 for welded steel cylinders concluded that it could also be adopted, subject to satisfactory revision.

35. There was a general discussion about the implementation of the ISO standards covering ultrasonic examination and acoustic emission examination in place of the hydraulic test during periodic inspection. The USA will prepare a further and more detailed proposal.

36. The USA favoured the adoption of the requirement for a first inspection of the porous mass after a short time in service to be specified by the relevant ISO standards.

Inf.31 (Germany)

37. Inf. 31 from Germany summarised the latest information on LC_{50} values and provided a comparative table. It was agreed that the most stringent value would be retained in the P200 and as a result two values were changed. All asterisks and the corresponding footnote could then be deleted.

38. Germany reported on the validation of the filling ratios and no changes were recommended pending the work on filling ratios in progress at CGA, in conjunction with NIST. On the subject of highly toxic gases the Working Group agreed with Germany that given the limitation of the capacity of the receptacles to 85 litres in conjunction with the special packing requirements (k), a further reduction of the quantity limits was not warranted.

Inf.33 (UK)

39. The Working Group discussed Inf. 33 from the UK which proposed new provisions for lightweight cylinders for LPG to be used in hot air ballooning. There was no support for including such provisions in the Model Regulations because it was, in effect, creating an exemption which would be inappropriate for international multi-modal regulations. Delegates recognised the problem and recommended possible alternative routes.

Inf. 12 AEGPL

40. The proposals 1, 2, 4 and 5 concerning empty receptacles, cartridges and aerosols were referred back to the Plenary for guidance as to whether they fell within the remit of the Working Group.

41. The other proposals were discussed and editorial changes incorporated. No consensus could be reached on other changes, however, and the AEGPL was invited to submit an official proposal.