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Working Party on the Transport of Dangerous Goods

**Joint Meeting of the RID Safety Committee and the
Working Party on the Transport of Dangerous Goods**
(Geneva, 9-13 September 2002)

Report of the Tank Working Group, Bonn, 11 - 13 March, 2002

Transmitted by the Government of Germany*/

The Tank ~~Work~~Working Group (TWG) conferred during the period 11 – 13 March, 2002 in Bonn on the basis of the decision that was made during the session of the Joint Meeting of September 2001 (see OCTI/RID/GT-III/2001-B or TRANS/WP.15/AC.1/86, No. 82 and INF.10 respectively). The TWG dealt with the following official and informal documents:

***/** Circulated by the Central Office for International Carriage by Rail (OCTI) under the symbol OCTI/RID/GT/III/2002/25.

2002/7	INF. 7	INF. 19
2002/10	INF. 8	INF. 21
2002/11	INF. 10	INF. 22
2002/12	INF. 11	INF. 27
2002/16	INF. 15 rev. 1	INF. 33

In addition to a non-official, informal paper to compare the determination of substances as per the old and the new RID/ADR in conjunction with special ~~rule~~provision TE1.

The TWG was comprised of 15 experts from 7 countries as well as 4 non-governmental organizations (NGOs). Unfortunately, it was not possible for experts from France, Great Britain, Italy, Spain and other important industrial nations to attend the meeting.

The TWG began its work with a discussion of document 2002/7.

Document: OCTI/RID/GT-III/2002/7 in conjunction with OCTI/RID/GT-III/2002/12

In providing document 2002/7, Switzerland is submitting a precise suggestion for the establishment, task and mode of operation of a permanent ~~work~~working group, which is to deal with the takeover and/or reference to standards in the RID and ADR ~~sets of~~ ~~rules~~regulations. An approval decision was already made in this respect on the occasion of the joint RID/ADR meeting held in the spring of 2001. In contrast to this, document 2002/12 presents the CEN's opinion, that establishing a RID/ADR standards group is unnecessary if a goal-oriented job sharing arrangement between ~~rule~~regulation-setting and standardization is introduced.

Contrary to the declining position of the CEN in Doc. 2002/12, the group was in agreement that a permanent RID/ADR standardization group is still appropriate because, for example, not every individual delegate is in a position to deal with all standardization problems in detail, so that preparatory work under RID/ADR aspects is highly appropriate for decision-making in the joint RID/ADR meeting. However, the following additional basic conditions for work within the standardization group should also be incorporated into the Swiss suggestion:

- Timely participation by the standardization group in the standardization process is necessary so that referencing of standards does not take place after these have been completed. This will avoid duplication of work.
- The RID/ADR standardization group should not form an authority for revising standards, but should serve as a "clearing office" instead.

With these supplements for increasing effectiveness on both sides, the Swiss suggestion is recommended to the joint RID/ADR meeting for discussion and possible decision making.

Document: OCTI/RID/GT-III/2002/10

The purpose of this application by the CEFIC is to eliminate the requirement for a ~~n~~ ~~additional-self contained respirator-breathing apparatus that is independent of the recirculation~~

~~system~~ in road and rail tank transport, i.e. to scratch special ~~requirement~~provision TP-13 in Table A, column 11.

The TWG has unanimously agreed that the purpose of this application is more to address a general safety aspect than a technical, tank-related safety aspect, so that it should thus not be dealt with in the TWG but rather in the joint RID/ADR meeting itself.

Document: OCTI/RID/GT-III/2002/11

This application by Germany deals with the regulations for ~~suction-pressure~~vacuum-operated waste tanks ~~tanks for waste~~. Within the scope of the ADR, the corresponding chapters 4.5 and 6.10 are limited to fixed tanks and demountable tanks while they are not included in the RID at all, although there is a demand for vacuum-operated suction-pressure tank-~~containers~~ (tank swap ~~tank~~ bodies) for waste. Not only the ADR, but also the scope of the RID should facilitate the transport of waste in ~~suction-pressure~~vacuum-operated tank containers and/or tank swap ~~tank~~-bodies. The RID and the ADR should thus be supplemented for this purpose.

The TWG has noticed that the wording selected in document 2002/11 does not always clearly reflect the changes intended. The title and certain passages of the text should thus comply with the actual suggestion and should thus be adapted or corrected as required (e.g. with respect to ~~Chapter-section~~ 6.10.4).

The TWG has the following opinion about the subject:

There are no objections to applying the ADR-scope regulations for ~~suction-pressure~~vacuum-operated waste tanks to tank containers etc. However, there are a number of questions that have to be clarified with respect to the takeover of corresponding regulations for tank containers, etc. into the RID; these questions relate to:

- the protection and/or adequate fixation of the suction facility on the upper tank side (to prevent possible contact with the contact wire).
- the energy supply for tank facilities during transport.

The TWG thus recommends splitting the application. As far as the forthcoming joint RID/ADR meeting is concerned, only the regulation supplement for tank containers in the ADR should be applied for – and this, as already mentioned, is approved by the group. It is thus proposed to forward to the joint RID/ADR meeting an edited ~~TK-INT~~ document that takes into account the above-mentioned aspects.

After the questions mentioned have been clarified, another application for taking over tank containers and tank swap ~~tank~~-bodies as ~~suction-pressure~~vacuum-operated waste tanks within the framework of the RID could then be forwarded to the next RID/ADR joint meeting.

Document: OCTI/RID/GT-III/2002/16

This application by the EIGA relates to the need for performing a leak-proofness test on tanks used for Class 2 gases within the scope of ~~recurring tests~~periodic inspections, if the different elements of a tank were subjected to separate leakproofness tests, and to the amount of pressure used.

The following solution was found after extensive discussions:

- The group endorses the application by EIGA to supplement ~~chapters-sub-sections~~ 6.8.3.4.3 and 6.8.3.4.6 b) (Note: The insertion to be made into the latter chapter must follow after the last sentence of the chapter and not after the first ~~sub-paragraphsub-section~~, as requested in the suggestion).
- The TWG endorses the application by EIGA to supplement ~~chapter-sub-section~~ 6.8.3.4.9 with the following modified wording:

"Leak~~proofness~~ tests on tanks for gases are to be performed using a pressure that for gases that are compressed, liquefied and dissolved under pressure, corresponds to at least 20% of the test pressure;
- for ~~frozen-refrigerated~~ liquefied gases, corresponds to at least 90% of the maximum ~~operating-working~~ pressure."

Document: INF. 8

The introduction of chapter 6.10 for ~~suction-pressure vacuum-operated waste~~ tanks ~~for waste~~, means that for the first time there is a request for a safety valve with a pre-~~connectedceded rupture diskbursting disc~~ without alternative for these tanks, so that any increase of pressure within the tank over and above the design pressure can be dissipated (some participants, for example, consider that such pressure increases could occur due to dangerous reactions between the substances being transported). Germany is of the opinion, that corresponding safety exists if the tanks can withstand any such pressure increases. That is why Germany suggests adding the following sentence in sub-section 6.10.3.9:

"~~Tank bodies of suction-pressure tanks for waste~~ Shells of vacuum-operated waste tanks must shall have a safety valve preceded by a bursting discbe equipped with a pre-connected rupture disk if the tanks have not been designed for a ~~minimum design~~calculation pressure of at least 10 bar."

The majority of TWG participants are of the opinion, that an increase of pressure in the tank cannot be incorporated in the ~~design-calculation~~ pressure and the corresponding increase in ~~wall-shell~~ thickness, so that bursting of the tanks can only be avoided by implementing corresponding safety ~~features~~devices. In contrast to this, Germany still maintains that an adequate ~~design-calculation~~ pressure for the tank would provide the necessary safety, particularly since there are no design criteria for safety valves and, furthermore, substances that can dangerously react with each other are not allowed to be transported in such tanks anyway. Nevertheless, a revised paper will be presented at the next joint RID/ADR meeting.

Document: INF. 7 in conjunction with INF. 33

On the occasion of the preceding meeting and this meeting, the TWG has occupied itself intensively with the new regulations and/or terminology and definitions for vacuum valves and tank codes N and H.

Following renewed extensive discussions, clarifications for the following points were obtained:

- The design pressure of tanks compared with the outer overpressure is at least 0.21 bar, if the tank is equipped with a vacuum valve. In this case it is possible for the vacuum valve to have a lower set pressure than -0.21 bar (e.g. -0.17 bar).
- Tanks without vacuum valve have a design pressure of at least -0.4 bar.
- L4BH tanks may be equipped with vacuum valves that have a set pressure of at least - 0.21 bar (see TE-15).

It has not ~~as~~-yet been clarified, which tank coding is to be used for tanks that do not have safety valves, but which are equipped with vacuum valves and have higher ~~design calculation~~ pressures than 4 bar.

In order to be able to obtain some type of solution, it was finally seen that there is a need to have a new definition for "not hermetically ~~sealed-closed~~ tanks" and to introduce this definition into ~~chapter-section~~ 1.2.1. Not hermetically ~~sealed-closed~~ tanks are tanks with safety valves (without a ~~pre-connected rupture disk~~~~preceded bursting disc~~), ~~rupture disks~~~~bursting discs~~ or similar safety facilities and/or with a vacuum valve.

If a tank only has a vacuum valve (in other words it does not have a safety valve), then the majority of participants consider that the tank should be designed for a test pressure of at least 4 bar, because tanks that have no safety valve are only permitted if they have a test pressure of at least 4 bar. On the other hand, some participants were of the opinion that even tanks without safety valves could be designed for test pressures less than 4 bar.

These differences of opinion result from differences in interpretation of the requirements specified in ~~chapters-sub-section~~ 6.8.2.2.6 through 6.8.2.2.8.

If it is possible to ~~design equip~~ tanks without safety valves and with a test pressure of less than 4 bar, then the question arises, whether the preceding ~~chapters-sub-sections~~ are completely superfluous.

Notwithstanding these aspects, the introduction of a new definition for "not hermetically ~~sealed-closed~~ tanks" will require a modification of Tank Code N in ~~chapter-sub-section~~ 4.3.4.1.1 part 4. This modification will be provisionally draft-formulated as follows:

"N = Not hermetically ~~sealed-closed~~ tank (see ~~chapter~~ 1.2.1). [Tanks having a ~~design calculation~~/test pressure of less than 4 bar ~~must shall~~ be equipped with safety facilities according to the requirements of ~~chapter-sub-section~~ 6.8.2.2.7 or 6.8.2.2.8.]"

In this sense this draft should be presented to the joint RID/ADR meeting for discussion with the aim of decision making.

Document: INF. 11

The intention of this suggested change put forward by CEN, is to introduce the pressure-vessel codes procedure into the RID/ADR regulations for determining the minimum wall-shell thickness of tankshells, whereby this would not have any effect on the previous method for determining the minimum wall-shell thickness of tanks-shells having an increased design-calculation pressure (10, 15 and 21 bar for liquids, and 22 bar for gases). This procedure would take into account the practised standardization procedure, which often refers solely to a consideration of the pressure vessel code.

Where tanks for gases are concerned, for which no (fictitious) design-calculation pressure has been provided, this would mean that for spherical tanks or tanks-shells with a semi-spherical bottomend, the formula

$$e = \frac{p_T \cdot D}{40 \cdot \sigma \cdot \lambda}$$

would apply instead of the formula

$$e = \frac{p_T \cdot D}{20 \cdot \sigma \cdot \lambda}$$

for determining the minimum wall-shell thickness, so that a reduction of the minimum wall-shell thickness by up to half of the current thickness would be possible.

The group unanimously agreed that the possibilities offered by this suggestion with respect to reducing the minimum wall-shell thickness for gas tanks would lead to a corresponding dropreduction in the level-of safety level for these tanks, insofar as spherical tanks or semi-spherical bottoms-ends are affected. For safety engineering reasons on the one hand, but also for political safety reasons on the other, the group was thus not able to follow the application. The joint RID/ADR meeting will thus be recommended not to approve the application.

Document: INF. 22

The UIP suggestion deals with the mutual RID-wide recognition of results from specialist tests-inspections and thus the executing specialist himself and/or the international approximation of the requirements for specialists who perform tests in compliance with RID. The problem was already discussed in the RID specialist Safety Committee. The result of the discussion will be picked up together with the UIP proposal to newly incorporate chapter section 1.8.6 in the RID.

The group generally supports the application; however it is their opinion that with respect to the RID there is a lack of concrete requirements for specialists, because, for example, a transfer of the TPED regulations into the RID is not possible and also considered as being inadequate by some participants. The TWG thus recommends that the joint RID/ADR meeting commission the CEN with a corresponding standardization contractmandate, and that the meeting should discuss the analogous takeover of the proposal or necessary parts of it into chapter-section 1.8.6.

Document: INF. 15 rev. 1

With this paper France is proposing a harmonization of the identification regulations in RID and ADR. According to RID, the labelling-marking of railway tank cars-wagons should include the date of the next recurring-periodic testinspection, whereby the labelling-marking of railway tank cars-wagons must also include the date of the last recurring-periodic testinspection. According to the suggestion by France, ADR tanks are to be also labelled marked with the date of the next recurring-periodic testinspection.

The majority of TWG participants were of the opinion that this RID labelling-marking requirement is not necessary in the ADR because the date of the next recurring-periodic test inspection can be clearly derived from the date of the last testinspection. The TWG therefore does not support this proposal.

Document: INF. 19

This application by Liechtenstein proposes a supplement to chapter 5.4 concerning empty, uncleaned tanks. Empty tanks that contained a dangerous substance are subject to the same regulations as in their filled condition, unless measures were taken to exclude every danger. Liechtenstein is applying for the following supplement: Corresponding measures have been taken when the above-mentioned vehicles and transportation means have been cleaned and degassed. In this case the corresponding cleaning certificate must be carried in the vehicle.

The group is of the opinion that the transport of empty but cleaned (and where necessary, degassed) tanks is not subject to ADR requirements so that this proposal is unnecessary and cannot be incorporated into the ADR with respect to the carrying of a cleaning certificate.

Document: INF. 21

Because of the special properties of ammonium nitrate, liquid (UN 2426) Belgium proposes that the tank code L4BV used hitherto be supplemented with a (+) code, because no other substances should be carried in such tanks.

The group unanimously agrees to grant the application by Belgium.

Document: INF. 27

In this document, Germany proposes conditions for additional tests for ammonia tanks, because certain tank materials, that are used for the transport of ammonium, water-free, can ~~trigger-cause~~ stress corrosion cracking in welded seams. Incidentally, this would implement a decision made by the RID ~~specialist~~ Safety Committees in this respect.

The TWG unanimously supports this proposal.

The joint RID/ADR meeting is thus asked to approve the German application to introduce a new special regulation-provision TT and assign it to UN 1005, as detailed in the application.

Document: Unofficial, informal paper to compare the determination of substances

This paper by the UIC representative in the TWG – which otherwise had an informative character only – led to a discussion concerning special regulation-provision TE1. The sense of the definition of special regulation-provision TE1 fully agrees with the definition for hermetically sealed-closed tanks. That is why in all cases, in which a hermetically sealed closed tank must be used, i.e. where the tank code must have an "H", special regulation-provision TE1 must be additionally incorporated into the corresponding documents (approval certificate, etc.). This will prevent an avoidable overregulation. The TWG thus proposes that special regulation-provision TE1 should be removed from chapter-section 6.8.4 and, instead, to incorporate into chapter-sub-section 6.8.2.2.10 a new general requirement that should have the following wording:

~~"Where-If~~ hermetically sealed-closed tanks are equipped with safety valves, ~~prior to which preceded by a rupture-disk has been pre-connected~~bursting disc, the following conditions ~~must-should be observed~~be maintained. The arrangement of the ~~rupture diskbursting disc~~ and the safety valve ~~must shall be such as to comply with the requirements of satisfy~~ the ~~relevant competent~~ authority. A pressure gauge or ~~some otheranother~~ suitable ~~indicating-indicatorinstrument must shall~~ be provided in the space between the ~~rupture diskbursting disc~~ and the safety valve, to enable detection of any ruptureso that breaks, perforations or leakages in- of the diskc, which may would render the safety system non-functional, can be detected disrupt the action of the safety valve."

Concluding-Final remark:

The TWG proposes to the joint RID/ADR meeting, ~~that the meeting should to~~ reconsider its decision to have the TWG ~~discuss tank questions~~ one week prior to the actual joint RID/ADR meeting. The results of the TWG may lose significance if important industrial nations cannot participate in the TWG's sessions, because the need for discussions in tank questions within the joint RID/ADR meeting could increase again. It would thus be necessary to either ensure increased participation in the separate TWG sessions, or the sessions should be held parallel to the actual joint RID/ADR ~~sessionsetings~~, as was formerly the case.
