**Dual Approval of UN Portable Tanks / RID-ADR Tank Containers – Draft 08.07-23**

**1 First Generation Portable Tanks**

In 2000, my good friends Bob Fossey (ex-CPV) and Jaap Huigen (ex-Bell Lines, ex- Sea Containers among others) wrote a history of the tank container which was published on the ITCO website. From that history the first ISO tank containers that we would still recognise today first appeared approximately in 1968. Soon afterwards, in the early part of the 1970s, the United Nations Committee of Experts on the Transport of Dangerous Goods made recommendations for their design, construction, inspection, testing, initial approval, intermediate periodic inspection and periodic inspection, certification and use of what they called “portable tanks”.

For the next 20 years the United Nations Committee of Experts on the Transport of Dangerous Goods did very little to update its recommendations for portable tanks. It was said, back then maybe quite rightly, they had too many other matters to deal with such as completing the classification criteria for the minor classes of dangerous goods and the replacement of the existing provisions for the specification of packagings by the prototype testing approval methods and then extending this concept to IBCs and Large Packagings. During this period, the three main groups of regulation makers made their own unilateral improvements to their regulations. By this I mean:

* the USA DOT with is portable tank specifications, mainly of IM Type 1, IM Type 2 and DOT 51 specification
* the European RID/ADR authorities with their tank-containers
* the IMO with their IMO Type 1, Type 2 an Type 5 portable tanks (and later Type 7 portable tanks)

 The changes wrought during this +20 year period by these three groups of regulation makers were so significant that by the late 1980s it was more or less impossible to have a portable tank approved to meet them all. If one complied totally with one set of regulations, one automatically fell foul of one of the other sets of regulations. It was the poor old USA DOT who probably bore the brunt of this in having to receive applications for endless “Special Permits” allowing the use of portable tanks complying with the IMDG Code and the European RID/ADR. You may still see today the Special Permit number (SP number) from the USA DOT in the form of a decal on many first generation portable tanks.

 In 1993 the United Nations Committee of Experts on the Transport of Dangerous Goods authorised a portable tanks working group to be set up to sort this mess out. The Experts authorised the working group to meet “intersessionally” meaning between its twice yearly meetings as well as during those meetings. The Portable Tanks Working Group started work in 1994, with an initial meeting at the IMO’s headquarters in London.

Professor Engineer Dr. Bernd Schulz-Forburg from the BAM in Berlin was appointed the chairman of the working group and Mr. Bob Richard, not long having joined the hazardous materials section of the USA DOT, was appointed its secretary. I attended most of those meetings as an industry representative of the European Portable Tank Association which had been granted joint observer status with the Committee of Experts with the USA’s recently formed Tank Container Association. Aris Antoniou represented the TCA. One person I recall playing an important role in this work was Madam Ariane Roumier of the French delegation, the lady who has raised the issue at RID/ADR/ADN level that the dual approval of UN portable tanks/RID/ADR tank-containers.

 The working group looked at four sets of documents, line by line:

* The recommendations in the United Nations Recommendations on the Transport of Dangerous Goods (The Orange Book and now deemed to be model regulations) of the day
* The European RID/ADR provisions especially in Appendix B1b devoted to tank-containers of that time
* The International Maritime Dangerous Goods Code, mainly section 13 dealing with IMO portable tanks of the early 1990s
* The USA DOT 49 provisions also of the 1990s

 The members of the working group examined each point of design, construction, inspection, initial testing, intermediate periodic inspection and testing and periodic inspection and testing line by line. It was extremely demanding and detailed work. We tried to decide who since the 1970s had come up with the best rule on any given point and selected those we thought were the best. If we were dissatisfied with them all, we produced a new rule. It was the working group, for example, which came up with the T-code system for portable tanks (the RID/ADR four-field tank code was discussed but rejected).

 Once we had done most of our work, when we were able to confirm all the new T-codes for what I shall deem to be a second generation of UN specification portable tanks, a second working group was convened who went through the Dangerous Goods List of the day (what is now Chapter 3.2 in the Model Regulations), It was important to find a way to make sure the new T-codes were allocated consistently to the entries (UN numbers) in the Orange Book’s Dangerous Goods List.

 Let’s take an example of why this needed to be done. Under the provisions of the IMDG Code of 1998 and earlier editions, the substance Methanol, UN 1230 could be transported in bottom outlet tank containers with three closures (as most of or ISO tank containers had). On the other hand, if you had a mixture of, for example, Toluene and Methanol, it was no longer permitted to use the UN number UN 1230. One had to change the UN number in this kind of situation to UN 1992. In 1998 edition and earlier, the IMDG Code required top discharge tank containers for dangerous goods of UN 1992.

 To help them allocate the new T-codes consistently, those experts developed a set of guidelines called the Rationalised Approach (this was published by the UN using the reference ST/SG/AC.10/25/Add.2 dated 2nd February 1999. (You could try looking for this document on the UNECE website but I don’t think documents so old are available. I have a hard copy.) The idea was that where, for example, you had a substance of Class 3, Packing Group II, the same T-code should be allocated or if you had a substance of Class 3, Packing Group II with a toxic subsidiary risk, you should always find the same T-code.

The creation of this UN Rationalised Approach (not to be confused with the RID/ADR rational approach found n Chapter 4.3 of these legal instruments)was deemed to be so successful for portable tanks that the United Nations Subcommittee of Experts on the Transport of Dangerous Goods decided to extend the rationalised approach to include all the other containment systems recommended by the Experts so there are now separate sections in what is now called the “Guiding Principles” how to consistently to apply the Model Regulation recommendations [the Orange Book, not to be confused with ADR which it often is, by the way], for example, Excepted Quantities, Limited Quantities, UN certified packagings, and UN certified IBCs.

 The latest edition fo this document, now called the Guiding Principles, can be found at:

<https://unece.org/sites/default/files/2023-02/Guiding_Principles_v7_1.pdf>

This historical background is mighty important for understanding how we have got into this dual approval situation.

 **Second Generation Portable Tanks Significant Changes**

What the Portable Tanks Working Group had produced is what we now see as Chapters 4.2 and 6.7 in the Orange Book, the IMDG Code, in RID and ADR. The principle underlying the provisions of these two chapters should be accepted by all national and international regulators involved in the transport of dangerous goods. In this way it should be possible to get rid of the need for multiple approvals for different modes of transport and to ensure that there are no differences in the rules for the design, construction, inspection, testing, initial approval, intermediate periodic inspections and tests and periodic inspections and tests.

I like to call the recommendations we see in these regulations today are the rules for a second generation portable tanks with just one approval being needed in theory for a portable tank which should be allowed to travel all over the world by at least the surface modes of transport without any further restrictions.. However I have to add a caution about this concerning the USA which I will write about shortly.

 For me, the significant changes made in the design and construction rules introduced included but not necessarily limited to:

* Introduction of a “reference steel” with precise values of tensile strength and elongation before fracture
* Introduction of “design pressure” which is the maximum allowable working pressure plus an allowance for the dynamic pressure caused by liquid surge, for example, caused by the surge when portable tanks are transported by sea in bad weather
* An extension of the minimum design temperature range to be from at least -40oC to +50oC (lowering this from typically -20oC for first generation portable tanks should be noted)
* A prohibition of the use of the kind of steels that had been used to construct the liquefied gas road tank car involved in the Los Alfaques camping site incident meaning an upper limit of the tensile strength of 725N/mm2
* Introduction of two different cube root formulae for the calculation of equivalent shell thickness
* Revised provisions for the transport of portable tanks still requiring to be transported with dangerous goods or the residues of dangerous goods beyond the date of expiry of the current test
* Introduction of the tank hierarchy table in Chapter 4.2 detailing what other higher T-code tanks may be used as a substitute for the T-code allocated to the substance concerned.

**Pressure Vessel Codes and the USA**

The USA DOT wanted to have the use of the ASME Pressure Vessel Code, Section 8, Division 1 to be included in the Orange Book for second generation portable tanks as the only one that could be used for their design and construction. A survey done by the USA suggested there were some 24 or so of these national pressure vessel codes in existence at that time. To that list we have to add EN 14025, the European pressure vessel code for dangerous goods transport tanks which did not exist back in the mid-1990s. As the representative of the trade association I had no strong objection to this proposal as this was what was already happening de facto in our industry.

However, this was totally unacceptable to the members of the Portable Tanks Working Group who were the government representatives as this would in effect grant enforcement powers on their territories as sovereign nations to an organisation perceived to be an enforcement power of another nation. This problem was never resolved. It was made worse by the wish of the USA DOT to impose as mandatory that constructors of tanks for the transport of gases and TIH substances the ASME U-stamp qualification for portable tanks intended for:

* the transport of liquefied gases of Class 2
* the transport of toxic liquids of Class 6.1 where this classification is due to the substance being toxic by inhalation at the Packing Group I level (meaning those substances to which Special Provision 354 in the Orange Book and the other international transport regulations applies) (PIH/TIH substances)

I will come back to this again when I write about how each of the main dangerous goods authorities decided to adopt the rules for the second generation of portable tanks into their regulations. This had a major impact on the situation we face today of dual approval.

**Implementation of the New Rules for Second Generation Portable Tanks – IMO**

The International Maritime Organisation, responsible for the International Maritime Dangerous Goods Code (IMDG Code) decided to adopt the new provisions for second generation UN portable tanks into the IMDG Code of 2000. Some transitional provisions were then provided by the IMO for the continued use of first generation IMO portable tanks. I attempt a summary of these below:

* First generation IMO portable tanks could be continued to be certified for the transport of dangerous goods up to the end of 2001. This gave a two year period for constructors who already had first generation portable tanks in production to complete their orders which had been validly put into production under the previous rules
* In some cases the results of the working group on allocating T-codes came up with a T-code which was lower in specification for a given UN number and Packing Group previously required. Where this happened, the IMO mostly allowed the lower specification portable tank, either first generation or second generation, to be used with immediate effect
* In some other cases the results of the working group on allocating T-codes came up with a T-code which was *higher* in specification for a given UN number and Packing Group previously required. Where this happened, the IMO mostly allowed the lower specification portable tank, either first generation or second generation, to be used until the end of 2009. From 2010 onwards either the first generation or the second generation portable tanks meeting the T-code requirement had to be used and the lower specification portable tanks be withdrawn from transporting the substance concerned. (Such portable tanks could still remain in use carrying other substances for which they met the appropriate T-code specification

The IMO adopted the Chapters 4.2 and 6.7 from the Model Regulations of the time more or less unaltered into the 2000 edition of the IMDG Code.

The IMO explains its rules for the continued use of first generation portable tanks in a document with the reference CCC.1/Circ. 3. This circular is mentioned in RID/ADR/ADN as a footnote to 1.1.4.3.

 **Implementation of the New Rules for Second Generation Portable Tanks – USA DOT**

The USA DOT, in the main, implemented the new provisions from the Orange Book’s Chapter 4.1 and 6.7 though the references in CFR 49 will be different.

 I mentioned the position taken by the USA DOT in the portable tanks working group, meaning that they wanted the use of the ASME pressure vessel code to be made mandatory worldwide. Although this was not accepted, the USA persisted with this requirement for any portable tank which needed to be used for the transport of hazardous materials (the USA term for dangerous goods) on its territory to be constructed according to ASME. There is a piece of text in CFR 49 where the USA DOT will accept appeals to use portable tanks designed to another pressure vessel code. I do not know how many appeals to the USA DOT of this kind there have been or how successful these were. However, the policy of the USA DOT was described to me by a DOT official back in the 1990s as being they would normally allow another country’s pressure vessel code if that country also approved the use of the ASME pressure vessel code.

 There is one exception to what I have just written. The USA DOT continues to ` *insist* that all second generation UN portable tanks intended for the transport of gases and those liquid substances classified as Class 6.1, toxic by inhalation at the Packing Group I on its territory *must* be constructed by a manufacturer anywhere in the world which holds the ASME U-stamp qualification. In turn, this also means there is a requirement for all repair depots worldwide working on tank shells must hold an ASME R-stamp qualification for continued use on USA territory.

 **Implementation of the New Rules for Second Generation Portable Tanks – RID and ADR for Europe**

As mentioned above, during the period 1970s to 1990s the European RID and ADR had developed their Appendix B1b giving the design and construction rules for RID/ADR tank-containers. These rules were also used for swap-body tanks which were/are regarded as the same thing for dangerous goods transport purposes by road and rail (and therefore by inland waterways as well – ADN).

 It was the responsibility of what was then the RID/ADR Joint Meeting Committee to decide what to do with the newly developed Chapters.4.2 and 6.7 rules of the portable tanks working group. If my memory is correct on the date, this was debated at the Joint Meeting when it met in September 1998. Whatever the case, I was at the meeting where this was debated as the representative, by then, of ITCO.

The debate about what to do was led by Mr. Wieger (Wim) Visser (RIP), a member of the Dutch delegation to this committee and someone back then who worked for the Dutch railways (NS). Back in those days, the NS still had its own freight business which since then was sold to DB.). He argued strongly for the retention of the Appendix B1b provisions for RID/ADR tank-containers (from the unrestructured RID and ADR). He noted that RID/ADR tank-containers (and RID/ADR swap body tanks) normally had a *thinner shell thickness requirement* compared to the thicknesses required according to the calculations required by Chapter 6.7 of the Orange Book. He noted that these thinner walled tank-containers had served European industry in need of combined transport services perfectly well so why should the authorities cancel the old Appendix B1b and replace it with these new second generation UN portable tank rules from the Model Regulations.

 His arguments won. As a trade association representative I had no vote. I could speak to everyone but as a trade association representative this is all I could do, to try to influence those who had a vote – the authorities from national governments with a place on this committee.

Not having a vote, there was nothing I could do about this decision. I made a mental note at the time that this decision would lead to all sorts of problems in the future. I think I have been proven right! I thought back then that we would come to regret that decision and that it would take a massive effort to put it right.

I thought that the decision taken in 1998 was a bad one back then and I remain convinced of this today, 20 years later. It was a decision always likely to lead to confusion and so it has proved to be.

 You see the results of that decision today. The RID and ADR have the Chapters 4.2 and 6.7 from the Model Regulations but they retained those old provisions. The old provisions are now in Chapter 6.8 of the RID/ADR. You see this in the title of this Chapter. You see this, too, in Chapter 6.8. The rules for the design and construction are the same for road tank cars, rail tank cars and RID/ADR tank- containers except where there is a dividing line on some pages. Where this happens, the rules on the right hand side of the page are for RID/ADR tank containers.

 I thought that the decision taken in 1998 was a bad one back then and I remain convinced of this today, 20 years later. It was a decision always likely to lead to confusion and so it has proved to be.

 There is a possibility that the tanks working group of what is now the RID/ADR/ADN Joint Committee may review this old decision. I got this from the report of their meeting this past March 2018. I hope they do change their minds.

**Why is Dual Approval Happening?**

 There are a number of reasons why dual approval is happening, not limited to the reasons I present below:

* There is mis-trust of these peculiar new since around 2000 UN portable tanks by the chemical industry. I have encountered this in BENELUX and in Germany. Some parts of the chemical industry believe the provisions of RID/ADR (in Chapter 6.8) are better and therefore safer than UN portable tanks which, of course, is nonsence.
* The chemical industry does not wish to inform and train its staff members in two types of tank, the different coding systems for them and how to recognise a UN portable tank authorised to transport its substances (remember, according to RID/ADR Chapter 1.4, there are legally mandatory duties imposed on tank fillers which include a requirement for fillers to check that the tank presented for loading is authorised to transport the substance concerned)
* The chemical industry has to run two different computer programmes and data bases, one for RID/ADR tanks and one for UN portable tanks and does not wish to do this.
* The tare mass of RID/ADR tank-containers can be lighter than the equivalent UN portable tank
* For me, what is more important is that we have got to the crazy situation back into economic equilibrium

**Cost Equilibrium Matter v Harmonzation Matter**

In the world of dangerous goods regulation making, we often speak of the need for harmonized regulations between the modes of transport. I submit that the dual approval set f issues are *not* a harmonization matters so much as an a cost equilibrium matters. It should not be possible for anyone to gain an economic benefit from applying the RID/ADR chapters 4.3 and 6.8 over applying chapters 4.2 and 6.7 or vice versa.

There are many, many situations where nevertheless this is true. I show these up to the stage I have reached reviewing these discrepancies in the attached Spreadsheet which I am part way through compiling.

**Disequlibrium**

There are situations where when you examine the RID/ADR Dangerous Goods List:

* There are entries where a UN portable tank code is given but not an RID/ADR tank code
* There are entries where an RID/ADR tank code is given but not an UN portable tank code
* There are situations where for UN portable tank T-code permits the use of bottom discharge tanks but the corresponding RID/ADR tank code requires the use of top discharge tanks

The cost difference between having to operate top discharge tanks compared to bottom outlet tanks is vast, massive and disruptive. It more or less forces the operator where top discharge tanks are required to make these “dedicated tanks” The operating costs when top discharge tanks are needed can be easily at least double, triple or more than with bottom outlet tanks.

* The RID/ADR in some cases require top discharge tanks but permit the fitting of “fist holes” to allow the draining of residues and wash waste water from them. I mean those where the letter “C” occurs in the RID/ADR tank code. These openings are *not* permitted for UN portable tanks. In these cases, the operators of RID/ADR tanks gain a massive cost advantage over those who have to operate top discharge tanks without such openings. These differences should be eliminated.
* In some cases the RID/ADR allows the use of “atmospheric tanks” meaning those substances where in the RID/ADR tank code has a “G” in it. Such tanks are not provided for in the Model Regulations, IMDG Code etc. These differences give rise to cost benefits where “G” tanks are allowed by the RID/ADR and should be eliminated
* The shell calculation requirements for UN portable tanks and RID/ADR tanks are different. What I say next is a bit of a sweeping statement but generally speaking at least for tanks intended for the transport of liquids and solids substance for substance you can calculate a thinner walled RID/ADR tank compared to a UN portable tank. These differences should be eliminated. It is interesting to note that there was such a fear of the extremes of thinness you might get from the RID/ADR calculations on wall thickness that the authorities for these rules felt it necessary to impose absolute wall thickness – see the table at 6.8.2.1.19.
* All UN portable tanks >1900 litres have to be fitted with pressure relief devices. The Guiding Principles allow many more substances to be transported multimodally around the world without the need to fit a frangible disc (rupture disc, bursting disc) whereas the RID/ADR require tanks for many, many substances to be hermetically closed. Dual approved tanks must have an emergency pressure relief valve to comply with the requirements of chapters 4.2 and 6.7. Therefore, to be dual approved they will require this device required for UN portable tanks to be fitted with a frangible disc. This is a cost barrier for RID/ADR tanks compared to UN portable tanks and should be eliminated.

**Not a Technical Set of Issues World Trade Organisation**

There are multiple reasons why there should only be one set of rule for e.g. ISO tank containers for the transport of dangerous goods. The issues in the main are nothing to do with any technical differences. Such thought processes therefore are redundant. What is so important, as I say, its that economic equality prevails in the decisions we take to eliminate RID/ADR tank-containers from these regulations. Indeed if I had my way with these issues I would take them to the World Trade Organisation as unnecessary barriers to trade. For the purposes of taking the matter of elimination of dual approval, we can forget about any technical differences – we do not need to consider this matter.

Perhaps a powerful nation like the USA could take this on – meaning going to te WTO? As far as I am concerned, the US, for example, would have a good case to take to the World Trade Organisation about this (never mind the protracted situation with the mutual respect of RID/ADR pressure receptacles and USA pressure receptacles now finally settled?).

**The RID/ADR/ADN Joint Committee Tanks Working Group Decisions – Dual Approval – Which Set of Rules Apply - General**

I wish to recall that the RID/ADR/ADN Joint Committee’s tanks working group has considered the matter of dual approval of RID/ADR tank-containers and UN portable tanks twice as to which set of rules should apply – Chapters 4.2 and 6.7 or Chapters 4.3 and 6.8. and each time it came up with the same answer. The first time was when this working group met in September 2009. This is what is written in the main report of that meeting from the working group discussions:

“ UN portable tanks – RID/ADR tank-containers (informal document INF.22)

53. The Joint Meeting noted that the Working Group on Tanks was not in a position to do much about reconciling the rules governing UN portable tanks and RID/ADR tank-containers.

54. With regard to the inspection problems raised by Belgium, it was pointed out that, in future, portable tanks should be marked with a T code. If a tank was marked with two codes (a T code and a RID/ADR code), it was allowed to carry substances authorized under either code.”

[**ECE/TRANS/WP.15/AC.1/116e**]

The report of this session of the Tanks Working Group provides further information on the point:

“**Item 11: Informal document INF.22 (Belgium) – Simultaneous approval as a portable tank and a tank-container**

26. During a roadside check of a vehicle, Belgium had become aware of differences between Chapters 6.7 and 6.8 which led to misunderstandings. Among other things, the working group was asked to list the differences between Chapters 6.7 and 6.8, to indicate which tank type displays the acceptable level of safety and to propose suitable amendments to columns (12) and (13) of Table A.

27. After a lengthy discussion in the working group, it was established that the tank requirements in RID/ADR Chapters 6.7 and 6.8 assume different approaches from the point of view of technical safety and are not therefore directly comparable. This is made clear by the following table, which provides some examples of this:

|  |  |
| --- | --- |
| **RID/ADR (tank-containers)** | **UN (portable tanks)** |
| Unpressurised tanks allowed | Tanks with a test pressure of at least 1.5 bar |
| Safety devices rare | Generally safety devices |
| Notional calculation pressure | Increased wall thickness |
| Reduced wall thickness allowed for all tanks with suitable protection  | Reduced wall thickness only allowed for T1 and T2 tanks |
| Design temperature -20 °C | Design temperature -40 °C |
| Tank codes and tank instructions based on different rationalised approaches |

28. Against this background, the working group did not think it would be able to carry out the work that would be needed to answer Belgium’s question in the framework of its usual working methods. The Joint Meeting was advised to set up a separate working group for this purpose if need be.”

This shows that the problem is not new and, moreover, recognises just what an enormous mess has been created by that decision of the Joint Meeting in the last century. There was nothing in the report as to how enforcers should know what rules were being followed!

I append INF paper 22 to this document.

**The RID/ADR/ADN Joint Committee Tanks Working Group Decisions – Dual Approval – Which Set of Rules Apply – Specific Cases** – UN 0331

When I started work in the transport of dangerous goods (1967) all the way into the early part of this century I held to the axiom that Class 1 dangerous goods can never be transported in tanks. That was overturned by the Sub-committee of Experts who deemed that dangerous goods of UN 0331 and UN 0332 were suitable substances to be allowed to be transported in Portable Tanks under certain conditions. The Joint Meeting did not allocate a corresponding RID/ADR tank code for these two UN numbers for some time. Why? Anyway this has been since resolved in that there are now RID/ADR tank codes in the Dangerous Goods List for these two substances. But this is symptomatic of the problem. Piecemeal ad hoc solutions like this show the much deeper malaise.

Here is what it says in the report of the 2012 autumn session of the Joint Meeting about the initial discussions on this:

“Item 9: Transport in tanks of UN 0331 (Explosive, Blasting, Type B)

*Document*: ECE/TRANS/WP.15/AC.1/2011/45 (Proposal withdrawn by CEFIC but taken up on its behalf by Germany and Switzerland)

14. The Joint Meeting did not reach a decision on the conclusions of the working group, which were transmitted to the Working Party on the Transport of Dangerous Goods (WP.15) for decision.”

so that chance of equalising the rules was missed on that occasion.

The tanks working group’s report for that session says this:

**The RID/ADR/ADN Joint Committee Tanks Working Group Decisions – Dual Approval – Which Set of Rules Apply – Specific Cases – UN 3500 to UN 3505**

This is what it says in the report from the Tanks Working Group autumn 2012 Meeting [ECE/TRANS/WP,15/124a2e]

“8. For UN Nos. 3500 to 3505 (chemicals under pressure), the Working Group noted that the European industry did not foresee a need for the carriage of chemicals under pressure in RID/ADR tanks but was nevertheless of the opinion that a proposal for appropriate tank codes in the next biennium is desirable to meet the possible future needs of industry.”

There are still no RID/ADR tank codes for these UN numbers as I demonstrate in my Spreadsheet 12 years on from that decision despite the report saying adding these are desirable.

**A Specific Case UN 3471 – Joint Meeting Tanks Working Group of November 2005**

This entry in the Dangerous Goods List is for a group of substances under an N.O.S entry in the Dangerous Goods List, Class 8, with a Class 6.1 toxic subsidiary danger, Packing Group II, Classification Code CT1.

The Joint Meeting Tanks Working Group was tasked with bringing forward an RID/ADR Tank Code for at the time this new UN number in the autumn of 2005 as part of the process of harmonizing the RID and ADR with the,,,, edition of the Model Regulations. Contrary to that edition of the Model Regulations which recommended a T7 UN portable tank instruction, they chose the higher L4DH meaning that a top discharge RID/ADR tank code would be needed once this new UN number started to enter into force. The working group was quite right at the time insofar as if the Guiding Principles are applied to substances with this classification and UN number then the allocation of portable tank instruction T7 was in error. As an N.O.S group of substances, it should have been assigned T8 so that their decision to allocate L4DH at that time was reasonable. However as far as I can see, nothing was done by the Joint Meeting to inform the UN Subcommittee of Experts to inform them of this error. This needs sorting out.

I give below paragraph 20 from the Tanks Working Group Report of their session in November 2005 []:

“20. Assignment of substances of Class 8, classification code CT1 to a tank code (TRANS/WP.15/AC.1/2005/42 (UNECE secretariat))

 The working group discussed the questions raised by the ad hoc working group on the harmonization of RID/ADR/ADN with the United Nations Recommendations on the Transport of Dangerous Goods, in paragraphs 22 and 23 of the report TRANS/WP.15/AC.1/2005/42, with reference to the relevant tank code for entry UN 3471, packing groups II and III.

 The T7 tank instruction of the United Nations Recommendations would authorize the tank code L4BN and L4BH of RID/ADR for these substances. The working group was of the opinion, however, that the tank code L4DH was more relevant, since this was an n.o.s. entry, which meant that the properties were not fully known.”

**Guiding Principles – Portable Tanks for Class 6.1 Toxic Substances – Possible Error**

In the Guiding Principles for the assignment of portable tank instructions (T-codes) for liquids of Class 6.1, Packing Groups II and III, the superscripts are contradictory in meaning for this class and should be amended.

II Any T7 or T8c or T11a

III Any T4 or T7a

The superscripts apply to substances where the human toxicity danger is a subsidiary risk which is illogical and a non sequitur in these cases. A proposal is need to the UN Subcommittee to sort this out.

**Assignment of RID/ADR Tank Code for Substances of Class 6.1, Packing Group III – Difference with the Guiding Principles**

According to the Guiding Principles, a UN portable tank of T4 or T7 are deemed to be suitable for the transport of liquids of Class 6.1, Packing Group III. For liquids of Class 6.1, Packing Group II with a Class 3 or Class 8 subsidiary danger UN portable tanks of T7, T8 or T11 are deemed to be suitable (any subsidiary danger). For liquids of Class 6.1 liquids of Packing Group III with a flammable or corrosive subsidiary danger (any subsidiary danger) a UN portable tank of T4 or T7 are also deemed to be suitable for these substances.

Also, according to the Guiding Principles, UN portable tanks of T4 or T7 are also deemed to be suitable for the transport of liquids of Class 3, Packing Group III with a Class 6.1 or Class 8 subsidiary hazard (any subsidiary danger). For liquids of Class 3 with a Class 6,1 or Class 8, Packing Group II a UN portable tank of T7, T8 or T11 are deemed to be suitable (any subsidiary danger).

Also, according to the Guiding Principles, UN portable tanks of T4 or T7 are also deemed to be suitable for the transport of liquids of Class 8, Packing Group III with a Class 6.1 subsidiary hazard (any subsidiary danger). For liquids of Class 8 with a Class 6,1 or Class 8, Packing Group II a UN portable tank of T7, T8 or T11 are deemed to be suitable (any subsidiary danger).

Please note that for all these T-codes “normal” pressure relief devices are required, meaning that they do not need to be fitted with a frangible disc (rupture disc, bursting disc) under the pressure relief valve.

In contrast, the Rationalised Approach in Chapter 4.3 of the RID and ADR assign RID/ADR tank codes ending in H for all these same classifications meaning that the tanks must be hermetically closed. Where the tanks are dual approved as both UN portable tanks and RID/ADR tank-containers, the only way to achieve this dual compliance is to fit a bursting disc under the pressure relief valve. This represents a massive difference between the requirements for UN portable tanks and RID/ADR tank containers. Equality between the two kinds of tank is necessary. It is proposed, therefore, that for all of these classifications (and possibly more that I do not have time to go into). It is proposed that at least for RID/ADR tank-containers the code assigned to these substances which has H in the fourth field is altered to “N” in all cases.

**Swap Body Tanks**

What these are confuses a lot of people. Clarification is needed in the RID, ADR and ADN in that swap body tanks can be equally UN portable tanks, RID/ADR tanks or both (dual approved). The title of Chapters 4.2 and Chapters 6.7 should be amended to reflect this situation with a note added to the start of Chapters 4.3 and 6.8 of RID and ADR about this. What differentiates them from ISO tank containers is merely a matter of dimensions. For an ISO tank container, these conform to the dimensions set out in standard ISO 668 (which links to some other ISO standards about freight containers) whereas a swap body tank conforms to EN 1432 (which also links to some other EN standards). In principle, these standards apply to all freight containers and swap body tanks irrespective of whether they are intended for the transport of

**Spreadsheet of Inequalities and Proposed Remedies**

See the attached interim spreadsheet, as mentioned above where I show the inequalities up to about UN 1739. I need to complete this spreadsheet with my suggestions as to how the anomalies should be sorted out.

**Further tasks for RPB:**

**Find that Italian paper about a missing RID/ADR Code**

**Find that IRU (Wauters) paper about dual approval**

**Find that Belgian paper, recent, about enforcement and dual approval**

**Recall that enforcement action in NL on max filling of a UN1170 (or was it UN 3065) ISO tank**

**Find the Joint Meeting Tanks Working Group answers about which rule you can apply x 2**

**What is surprising is the small number of problems with dual approved tanks enforcement. Are we not hearing or is the enforcement level just too low?**

See the attached interim spreadsheet where I show the inequalities up to about UN 1699. I need to complete this spreadsheet with my suggestions as to how the anomalies should be sorted out.

Regards,

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ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

Working Party on the Transport of Dangerous Goods

Joint Meeting of the RID Committee of Experts and the

Working Party on the Transport of Dangerous Goods

Bern, 8-11 September 2009 and

Geneva, 14-18 September 2009

Item 5 of the provisional agenda

**TANKS**

Simultaneous approval as a portable tank and a tank-container

Transmitted by the Government of Belgium

**Introduction**

During a recent road control in Belgium, a vehicle was stopped carrying a tank-container filled with UN 1296 Triethylamine and marked with the tank code L4BN. According to the dangerous goods list, a L4BH tank is needed for this substance. The controlling agents therefore ordered the transfer of the triethylamine to such a type of tank.

The shipper however intervened and submitted documentation showing that the tank was also approved as a T7 portable tank. In spite of the fundamental difference between both types of tank (a L4BH being hermetic and a T7 not), the carriage of triethylamine is permitted in a T7 portable tank according to the dangerous goods list.

The above-mentioned case is not an exception. The provisions for the portable tanks and for the tank-containers carrying the same substance contradict each other quite often. This leads to very confusing and unacceptable situations, bearing in mind that it is relatively easy to fulfil the requirements of both the chapters 6.7 and 6.8 simultaneously and that most of the portable tanks will not be marked with their tank code for quite some time,

If one and the same tank can carry a dangerous substance when it bears one of the allowed markings, but not when it bears the other, then that situation has nothing to do with the safety during transport and should be remedied as soon as possible.

**Proposal**

Belgium proposes that the tank working group is to :

– list all fundamental differences between columns (10) and (11) of the dangerous goods list on the one hand, and columns (12) and (13) on the other ;

– decide for all these cases, based on safety during transport, which of both tank types represents the correct acceptable minimal safety level ;

– propose the appropriate changes to columns (12) and (13) of the dangerous goods list if the portable tank of columns (10) and (11) represents the correct acceptable minimal safety level ;

– formulate a proposal for the other cases, to be transferred by the Joint Meeting to the UN Committee of Experts on the Transport of Dangerous Goods.

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