

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, 14–18 March 2016

Item 2 of the provisional agenda

Tanks

15 February 2016

Tanks: Informal Working Group on the inspection and certification of tanks

Transmitted by the Government of the United Kingdom

Summary

1. The informal working group on the inspection and certification of tanks met for a third time in London on 11 to 13 January 2016 under the chairmanship of Mr. J. Mairs (United Kingdom). Representatives of Belgium, Finland, France, Germany, the Netherlands, Poland, the Republic of Ireland, Sweden, Switzerland, the United Kingdom, CLCCR, IDGCA, ITCO, and UIP participated. Norway, Spain and Sweden sent apologies for absence.

2. The group continued its work reported in ECE/TRANS/WP.15/AC.1/2016/13 focussing its attention on the proposed questionnaire for obtaining information on what is known by competent authorities of the activities of appointed inspection bodies within participating countries (see Annex A). The group also sought to improve the text of 6.8.2.1.23 pertaining to welds and their inspection (see Annex B).

3. The Joint Meeting is requested to:

- Review, revise and approve the distribution of the questionnaire at Annex A to RID Contracting States and ADR Contracting Parties (see paragraph 4 below);
- Consider the proposal for amending 6.8.2.1.23 at Annex B for inclusion in the 2017 Editions of RID and ADR having regard to the deliberations recorded at paragraphs 6 and 7 below;
- Allow the informal working group on the inspection and certification of tanks to continue its work discussed below in paragraph 8.

Appointment, control and monitoring of inspection bodies, including mutual recognition

4. The group is developing a questionnaire for obtaining information on what is known by competent authorities of the activities of appointed inspection bodies within participating countries in respect of RID/ADR Chapter 6.8 tank wagons, fixed tank (tank vehicles), demountable tanks and tank containers. It was revised based on the feedback from a draft circulated to members of the group and the latest version is presented at Annex A. The Joint Meeting is asked to approve its distribution to the Contracting States of RID and the Contracting Parties of ADR.

Improvements to construction and inspection requirements

5. The text contained in Annex B reflects the consensus of the discussion. However, there are some areas that merit further discussion at the Joint Meeting for possible inclusion in the 2017 Editions of RID and ADR if consensus emerges.

6. The group discussed the merits of requiring non-destructive examination of the welds using radiography irrespective of the design of the structural joint. Some delegations felt that the 2017 Editions of RID and ADR should explicitly relieve lap joint designs from radiographic examination. This would reflect the sound engineering judgement and long operational experience that other delegations rely on to demonstrate that lap joints are adequately strong. Furthermore, they consider that radiography is unlikely to be informative on the quality of welding given the geometry of the joint.

7. The group also discussed the merits of requiring the most highly stressed areas of the structural joints in both normal and accident conditions of transport to be selected for non-destructive examination of the welds. Some delegations proposed that the front and rear most circumferential welds in cases where there is no additional protection from lateral impacts or turnovers should be subject to non-destructive examination using radiography. Other delegations were of the opinion that the existing requirements provided adequate protection in the event of such events.

Proposed further work for the informal working group on tank inspection and certification

8. The group seeks the approval of the Joint Meeting to continue its work within its existing mandate so that it can, *inter alia*:

- Develop further the proposals for amending RID/ADR/ADN to achieve greater harmonisation of inspection and approval procedures for tanks for substances of Classes 3 to 9 with tanks for substances of Class 2. The delegation of France presented emerging proposals that build on those tabled by Germany and the UIP at the second meeting of the informal working group. The group saw merit in the work presented and believes that further work could lead to proposed amendments for the 2019 Editions of RID and ADR;
- Analyse the returns on the questionnaire set out in Annex A;
- Develop confidence building measures to achieve mutual recognition by promoting the monitoring of inspection body activity based on an improved knowledge of the numbers and types of certificates being issued by whom, when and where.;
- Subject to the Joint Meeting endorsing the concept that internal inspections can be conducted using remote inspection methods, establish a framework for the development of appropriate technical standards having reference to any that apply to other industry sectors;
- Continue its work on exceptional checks after repairs or alterations to tanks or their service equipment with a view to developing proposals for amending the 2019 Editions of RID and ADR or the relevant standards;
- Monitor the progress of the working group responsible for EN 13094 in developing an effective means of assessing the designs of tanker end dish to shell joints which do not conform to those depicted in the informative annex in the standard for the design and construction of low pressure tanks;

Annex A

Questionnaire on tank inspection

RID/ADR requires that tanks are constructed to an approved design. They must be inspected and tested before entering service for the first time and at intervals thereafter, by an expert approved by the competent authority or its authorised body. Following a decision of the RID/ADR informal working group on the inspection and certification of tanks, this survey has been prepared by the competent authority of the United Kingdom in order to gather information on how contracting states/parties authorise bodies or approve experts for this purpose, what controls are placed on their activities and how they are monitored.

The following questions concern the arrangements that exist in your country for examining and certifying just those tanks covered by RID/ADR Chapter 6.8, EXCLUDING battery wagons, battery vehicles, MEGCs and TPED tanks. The questionnaire does not concern the inspection of tanks constructed in accordance with Chapters 6.7, 6.9 or 6.10, nor the vehicles which tanks are mounted on.

For Yes/No question please put an X as required. If more than one answer applies, put an X against all the applicable answers.

1. **Name of person responding:**
2. **Email:**
3. **Responding on behalf of the competent authority of (country):**
4. **Which government department or agency is your national competent authority responsible for inspecting and certifying chapter 6.8 tanks or approving bodies to inspect and certify them under?**
 - a) ADR
 - b) RID

Part 1. - Inspection

5. **Who is permitted to assess the conformity of tanks in your country?**
 - a) The national competent authority or another government agency
Yes No
 - b) Inspection bodies approved by the national competent authority
Yes No
 - c) Inspection bodies approved by the competent authority of another country
Yes No
 - d) Some other body (please provide details below)
6. **Who is permitted to perform the initial inspection of new tanks in your country?**
 - a) The national competent authority or another government agency
Yes No
 - b) Inspection bodies approved by the national competent authority
Yes No

- c) Inspection bodies approved by the competent authority of another country
Yes No
 - d) Some other body (please provide details below)
7. **Who is permitted to perform periodic inspections of tanks in your country?**
- a) The national competent authority or another government agency
Yes No
 - b) Inspection bodies approved by the national competent authority
Yes No
 - c) Inspection bodies approved by the competent authority of another country
Yes No
 - d) Some other body (please provide details below)
8. **Who is permitted to perform intermediate inspections of tanks in your country?**
- a) The national competent authority or another government agency
Yes No
 - b) Inspection bodies approved by the national competent authority
Yes No
 - c) Inspection bodies approved by the competent authority of another country
Yes No
 - d) Some other body (please provide details below)
9. **Who is permitted to perform exceptional checks on tanks to in your country?**
- a) The national competent authority or another government agency
Yes No
 - b) Inspection bodies approved by the national competent authority
Yes No
 - c) Inspection bodies approved by the competent authority of another country
Yes No
 - d) Some other body (please provide details below)
10. **Which of the following requirements must an inspection body meet in order to be approved by your competent authority to inspect tanks in your country?**
- a) Must have a registered office in your country
Yes No
 - b) Must be accredited to ISO 17020 to inspect tanks
Yes No
 - c) Must be audited by you as the competent authority
Yes No
 - d) Must meet some other requirement (please provide details below)

11. **Do you publish a list of the inspection bodies who are approved to inspect and certify tanks in your country?**
Yes No
12. **If you publish a list of inspection bodies, where can a copy be obtained from? (Please provide details below)**

Part 2. – Issuing certificates

13. **Who issues certificates of type approval in your country?**
- a) The national competent authority or another government agency
Yes No
- b) Inspection bodies approved by the national competent authority
Yes No
- c) Some other body (please provide details below)
14. **Who issues certificates of initial inspection in your country?**
- a) The national competent authority or another government agency
Yes No
- b) Inspection bodies approved by the national competent authority
Yes No
- c) Some other body (please provide details below)
15. **Who issues certificates of periodic inspection in your country?**
- a) The national competent authority or another government agency
Yes No
- b) Inspection bodies approved by the national competent authority
Yes No
- c) Some other body (please provide details below)
16. **Who issues certificates of intermediate inspection in your country?**
- a) The national competent authority or another government agency
Yes No
- b) Inspection bodies approved by the national competent authority
Yes No
- c) Some other body (please provide details below)
17. **Who issues certificates following an exceptional check in your country?**
- a) The national competent authority or another government agency
Yes No
- b) Inspection bodies approved by the national competent authority
Yes No

- c) Some other body (please provide details below)

Part 3. - Statistics

18. **Do you gather statistics on the number and type of tank certificates that are issued in the name of your competent authority, including those issued by approved bodies?**

- Yes No

if the answer to Question 18 is NO, skip to Question 21

19. **How are your statistics gathered?**

- a) Data is recorded in a central database whenever a certificate is issued

- Yes No

- b) Approved inspection bodies provide statistics to the competent authority:

- Yes No

If the answer to b. above is yes, how often is the data provided

- Every months

- c) Data is gathered by another method (please provide details)

20. **Approximately how many certificates per year are issued by you and by bodies operating under your approval for?**

- | | |
|--------------------------------|-----------------------------|
| a) ADR type approval | RID type approval |
| b) ADR initial inspection | RID initial inspection |
| c) ADR intermediate inspection | RID intermediate inspection |
| d) ADR periodic inspection | RID periodic inspection |
| e) ADR exceptional check | RID exceptional check |

21. **How many people are authorised to operate as tank inspectors under the approval of your national competent authorities:**

- a) for ADR tanks?
- b) for RID tanks?

22. **Are any of these inspectors allowed to inspect tanks at locations beyond your national borders?**

- Yes No

Part 4. - Recognition

23. **If a NEW Chapter 6.8 tank is constructed in another country and mounted on a road vehicle that is to be registered and operated in your country, what would you accept as evidence of its type approval and initial inspection?**

- a) Certificates issued by your national competent authority or a body approved by them

- Yes No

b) Certificates issued by or on behalf of the competent authority of the country the tank was built in, providing it is an EU or EEA member state

Yes No

c) Certificates issued by or on behalf of the competent authority of the country the tank was built in, if it is an ADR contracting party, even if it is not an EU or EEA member state.

Yes No

d) Certificates issued by or on behalf of the competent authority of the country the tank was built in, if it is known to be applying ADR, even if it is not a formally contracting party

Yes No

e) Certificates issued by or on behalf of any ADR competent authority even if it was not the competent authority of the country the tank was built in

Yes No

24. If a USED Chapter 6.8 tank, mounted on a road vehicle, which has been in service in another country is to be imported and registered your country, what would you accept as evidence of its type approval and initial inspection?

a) Certificates issued by your national competent authority or a body approved by them

Yes No

b) Certificates issued by or on behalf of the competent authority of the country the tank was built in, providing it is an EU or EEA member state

Yes No

c) Certificates issued by or on behalf of the competent authority of the country the tank was built in, if it is an ADR contracting party, even if it is not an EU or EEA member state.

Yes No

d) Certificates issued by or on behalf of the competent authority of the country the tank was built in, if it is known to be applying ADR, even if it is not a formally contracting party

Yes No

e) Certificates issued by or on behalf of any ADR competent authority even if it was not the competent authority of the country the tank was built in

Yes No

25. Which of the following do you accept as evidence of the periodic and intermediate inspection of Chapter 6.8 tanks that are mounted on road vehicles registered in your country?

a) Certificates issued by your national competent authority or a body approved by them

Yes No

b) Certificates issued by or on behalf of the competent authority of the country the tank was built in, providing it is an EU or EEA member state

Yes No

c) Certificates issued by or on behalf of the competent authority of the country the tank was built in, if it is an ADR contracting party, even if it is not an EU or EEA member state.

Yes No

d) Certificates issued by or on behalf of the competent authority of the country the tank was built in, if it is known to be applying ADR, even if it is not a formally contracting party

Yes No

e) Certificates issued by or on behalf of any ADR competent authority

Yes No

26. Which of the following do you accept as evidence of the periodic and intermediate inspection of Chapter 6.8 tanks that are fixed to rail wagons based in your country?

a) Certificates issued by your national competent authority or a body approved by them

Yes No

b) Certificates issued by or on behalf of the competent authority of the country the tank was built in, providing it is an EU or EEA member state

Yes No

c) Certificates issued by or on behalf of the competent authority of the country the tank was built in, if it is an RID contracting party, even if it is not an EU or EEA member state.

Yes No

d) Certificates issued by or on behalf of the competent authority of the country the tank was built in, if it is known to be applying RID, even if it is not a formally contracting party

Yes No

e) Certificates issued by or on behalf of any RID competent authority

Yes No

Part 5. – Operation beyond national boundaries

27. Can an inspection body that has been approved by another competent authority, but not your national competent authority, examine and certify tanks in your country if:

a) the tanks are to be registered and based in your country?

Yes No

b) the tanks are to be exported to the country that approved the inspection body?

Yes No

c) the tanks are ADR tanks and are to be exported to a 3rd country, i.e. a country which is not the country that approved the inspection body?

Yes No

d) the tanks are RID tanks and are to be exported to a 3rd country, i.e. a country which is not the country that approved the inspection body?

Yes No

28. Does your national competent authority approval allow an inspection body to examine and certify the following tanks in another RID/ADR country?

a) ADR Chapter 6.8 road tanks?

Yes No

b) RID Chapter 6.8 rail tanks?

Yes No

29. Does your national competent authority approval allow an inspection body to examine and certify the following tanks in a NON - RID/ADR country?

a) ADR Chapter 6.8 road tanks?

Yes No

b) RID Chapter 6.8 rail tanks?

Yes No

30. If your national competent authority approval allows an inspection body to perform initial inspection of tanks in an RID/ADR country can the inspection be done by:

a) Inspectors employed by the approved body and based in your country, who travel to the country where inspection takes place?

Yes No

b) Inspectors employed directly by the approved body and based in the country where inspection takes place?

Yes No

c) An inspection body based in the country where inspection takes place, which is a branch or wholly owned subsidiary of the approved body?

Yes No

d) An inspection body based in the country where inspection takes place and is part of the same group as the approved body but has separate legal identity?

Yes No

e) An inspection body which is unrelated to the approved body, but is approved by the competent authority of the country where the inspection takes place?

Yes No

f) A tank manufacturer's in-house inspection service if they are considered competent by the approved body?

Yes No

31. If your national competent authority approval allows an inspection body to perform initial inspection of tanks in a NON - RID/ADR country can the inspection be done by;

- a) Inspectors employed by the approved body and based in your country, who travel to the country where inspection takes place?
Yes No
- b) Inspectors employed directly by the approved body and based in the country where inspection takes place?
Yes No
- c) An inspection body based in the country where inspection takes place, which is a branch or wholly owned subsidiary of the approved body?
Yes No
- d) An inspection body based in the country where inspection takes place and is part of the same group as the approved body but has separate legal identity?
Yes No
- e) An inspection body which is unrelated to the approved body, but is approved by the competent authority of the country where the inspection takes place?
Yes No
- f) A tank manufacturer's in-house inspection service if they are considered competent by the approved body?
Yes No

32. **What steps would you expect an approved inspection body should take to establish the competence and monitor performance of a body based in the country in which inspection takes place (a 'local' body) whose services they use? (Please try to answer this question, even if you do not permit approved bodies to use the services of 'local' inspection bodies)**

- a) The local body must be accredited to ISO 17020 for the type of tank to be inspected
Yes No
- b) The local body must be accredited to ISO 17025
Yes No
- c) The local body must be audited annually by the national accreditation body as part of the approved inspection body's accreditation process
Yes No
- d) Local body must be audited annually by the approved inspection body
Yes No
- e) By another method (please provide details)

33. **If the local body is accredited to ISO 17020, do you believe the cross-border accreditation rules should apply?**

- Yes No

Thank you for your taking the time to take part in this survey. Please email the completed form to: tanks@yca.gov.uk

Annex B

Proposed amendments to RID/ADR

Add a new paragraph to Section 1.6.3:

“1.6.3.X Tank wagons/fixed tanks (tank-vehicles) and demountable tanks constructed before 1 July 2017 in accordance with the requirements in force up to 31 December 2016 but which do not however conform to the requirements of 6.8.2.1.23 applicable as from 1 January 2017 may still be used.”

Add a new paragraph to Section 1.6.4:

“1.6.4.Y Tank-containers constructed before 1 July 2017 in accordance with the requirements in force up to 31 December 2016 but which do not however conform to the requirements of 6.8.2.1.23 applicable as from 1 January 2017 may still be used.”

Amend paragraph 6.8.2.1.23 to read as follows:

"Welding and inspection of welds"

6.8.2.1.23 The manufacturer's qualification for performing welding shall be verified and confirmed by either the competent authority or by the body designated by this authority which issued the type approval. A weld quality assurance system shall be operated by the manufacturer. Welding shall be performed by skilled welders using a welding process whose effectiveness (including any heat treatments required) has been demonstrated by test. Non-destructive tests shall be carried out by radiography or by ultrasound and must confirm that the quality of the welding is appropriate to the stresses.

The following checks shall be carried out for welds made by each welding process used by the manufacturer in accordance with the value of the coefficient λ used in determining the thickness of the shell in 6.8.2.1.17:

$\lambda = 0.8$: all weld beads shall so far as possible be inspected visually on both faces and shall be subjected to non-destructive checks. The checks shall include all weld "Tee" junctions with the total length of weld examined to be not less than;

- 10% of the length of all the longitudinal welds,
- 10% of the length of all the circumferential welds,
- 10% of the length of all the welds in the tank ends and
- 100% of all connections inserted to avoid welds crossing;

$\lambda = 0.9$: all longitudinal weld beads throughout their length, all connections, 25% of circumferential and radial weld beads, and welds for the assembly of large-diameter items of equipment shall be subjected to non-destructive checks. Weld beads shall be checked visually on both sides as far as possible;

$\lambda = 1$: all weld beads throughout their length shall be subjected to non-destructive checks and shall so far as possible be inspected visually on both sides. A weld test-piece shall be taken.

In the cases of either $\lambda = 0.8$ or $\lambda = 0.9$, when the presence of an unacceptable defect is detected in a portion of a weld, the monitoring shall be extended to a portion of equal length on both sides of the portion that contains the defect. If the checks detect an additional defect that is unacceptable, monitoring shall be extended to all welds of the same type.

Where either the competent authority or the body designated by this authority which issued the type approval has doubts regarding the quality of welds including the welds made to repair any defects revealed by the non-destructive tests, it may require additional checks.”

With track changes showing new and ~~deleted~~ text.

1.6.3.X Tank wagons/ fixed tank (tank vehicles) and demountable tanks constructed before 1 July 2017 in accordance with the requirements in force up to 31 December 2016 but which do not however conform to the requirements of 6.8.2.1.23 applicable as from 1 January 2017 may still be used.

1.6.4.Y Tank containers constructed before 1 July 2017 in accordance with the requirements in force up to 31 December 2016 but which do not however conform to the requirements of 6.8.2.1.23 applicable as from 1 January 2017 may still be used.

Welding and inspection of welds

6.8.2.1.23 The manufacturer's qualification for performing welding ~~operations~~ shall be ~~one recognized-verified and confirmed~~ by either the competent authority or by the body designated by this authority which issued the type approval. A weld quality assurance system shall be operated by the manufacturer. Welding shall be performed by skilled welders using a welding process whose effectiveness (including any heat treatments required) has been demonstrated by test. Non-destructive tests shall be carried out by radiography or by ultrasound and must confirm that the quality of the welding is appropriate to the stresses.

The following checks shall be carried out for welds made by each welding process used by the manufacturer in accordance with the value of the coefficient λ used in determining the thickness of the shell in 6.8.2.1.17:

$\lambda = 0.8$: ~~all the~~ weld beads shall so far as possible be inspected visually on both faces and shall be subjected to ~~a non-destructive spot checks.~~ The checks shall include all All-weld "Tee" junctions with the total length of weld examined to be not less than 10% of the sum of the length of all longitudinal, circumferential and radial (in the tank ends) welds shall be tested;

10% of the length of all the longitudinal welds,
10% of the length of all the circumferential welds,
10% of the length of all the welds in the tank ends and
100% of all connections inserted to avoid welds crossing;

$\lambda = 0.9$: all longitudinal weld beads throughout their length, all connections, 25% of ~~circular~~circumferential and radial weld beads, and welds for the assembly of large-diameter items of equipment shall be subjected to non-destructive checks. Weld ~~b~~Beads shall be checked visually on both sides as far as possible;

$\lambda = 1$: all weld beads throughout their length shall be subjected to non-destructive checks and shall so far as possible be inspected visually on both sides. A weld test-piece shall be taken.

In the cases of either $\lambda = 0.8$ or $\lambda = 0.9$, when the presence of an unacceptable defect is detected in a portion of a weld, the monitoring shall be extended to a portion of equal length on both sides of the portion that contains the defect. If the checks detect an additional defect that is unacceptable, monitoring shall be extended to all welds of the same type.

Where either the competent authority or the body designated by this authority which issued the type approval has doubts regarding the quality of welds ~~beads~~including the welds made to repair any defects revealed by the non-destructive tests, it may require additional checks.