



QUESTION / CLARIFICATION

CO-ORDINATION BETWEEN NOTIFIED BODIES

INTEROPERABILITY DIRECTIVE AND SUBSEQUENT AMENDMENTS ON THE INTEROPERABILITY OF THE RAIL SYSTEM WITHIN THE UNION

QC-INF-009

Issue 02

Date 15/09/2016

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TITLE

FIRE PROTECTION REQUIREMENTS FOR STRUCTURES

ORIGINATOR

SG INF

SUBJECT RELATED TO

TSI SRT 4.2.2.3

DESCRIPTION AND BACKGROUND EXPLANATION

Chapter 4.2.2.3 of the TSI SRT reads as follows:

*“The **integrity of the structure shall be maintained**, in the event of fire, **for a period of time sufficiently long to permit self-rescue and evacuation of passengers and staff** and the intervention of rescue services without the risk of structural collapse.”*

*“The fire performance of the finished **tunnel surface**, whether in situ rock or concrete lining, has to be assessed. It **shall withstand the temperature of the fire** for a particular duration of time. The specified ‘temperature-time curve’ (**EUREKA-curve**) is given in the following figure. “*

Both clauses describe the requirements which the “tunnel surface” has to withstand in the event of a fire. But it can be read in 2 different ways:

- a) The tunnel surface has to withstand a time which is long enough to permit self-rescue and evacuation.
- b) The tunnel surface has to withstand the entire Eureka curve.

And of course, a combination of both interpretations is possible too: the tunnel surface has to withstand the Eureka curve just for the time which is needed for self-rescue and evacuation.

The RFU-INS-035 was published in 2009 on this topic, but it still leaves room for misinterpretation.

The requirements given in the TSI SRT are not clear. We also have to distinguish between the protection of the structure and the protection of the persons (self-rescue and rescue services). These two cases are not clearly separated in the text of the TSI SRT. The following questions have to be answered:

1.) What is the exact requirement (protection of persons or/and protection of the structure) for maintaining the integrity of the structure in the event of fire? Do we have to use the EUREKA-curve for maintaining the integrity of the structure (protection of structure) and is there a minimum time period?

2.) Do we need to use the EUREKA-curve to assess the finished tunnel surface (concrete lining)? Is the “particular duration of time” given through the time needed for



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self-rescue and rescue services or through the time given by temperature limits survivable for protected or unprotected persons?

3.) If self-rescue and evacuation of passengers and staff and the intervention of rescue services has to be assured without endangering people, then the question is: Do we have to assess also spalling parts that can endanger persons (selfrescue or rescue services) in the tunnel and by which means?

SUGGESTED RESOLUTION / INTERPRETATION

There is no suggested resolution of NB Rail on this topic because there was not found common solution in the SG Infrastructure of NB Rail

ORGANISATION(S) REQUESTED TO RESPOND (E.G. TSI GROUP, RISC, ERA ETC.)

ERA

DATE OF AGREEMENT AT NB RAIL PLENARY MEETING

08/02/2012

RESPONSE FROM ORGANISATION ABOVE

EAR issued the TO ERA/OPI/2012-07/INT on 30/07/2012, approved at RISC 65 on October 2012

Technical Opinion on QC-INF-009 as addressed by the Notified Bodies

Reference:	ERA/OPI/2012-07/INT
Publication Date :	26/10/2012
Published by:	Interoperability
Document Types:	Opinion
Related TSI:	SRT TSI
Keywords:	
RISC/EC Consideration:	This technical opinion (TO) was presented to the Railway Interoperability and Safety Committee (RISC) at its meeting 65 held on 18/10/2012. The Commission services intend to take into account this technical opinion in the legal act(s) amending the TSI(s) concerned and currently in force.
Description:	ERA technical opinion regarding notification from NB-Rail concerning clause 4.2.2.3 on "Fire protection requirements for structures" of the SRT TSI (QC-INF-009).
Related documents:	Technical Opinion (EN)

OPINION ERA/OPI/2012-07/INT
OF THE EUROPEAN RAILWAY AGENCY
of 30 July 2012

FOR

Ms Sian PROUT – DG MOVE B2

REGARDING

Question and clarification from NB-Rail concerning clause 4.2.2.3 on “Fire protection requirements for structures” of the SRT TSI (QC-INF-009)

1. General Context

1. In a note to JC Pichant dated 30 May 2012 and referenced D (2012)643.673, Ms Sian PROUT (DG-MOVE B2) has requested the Agency to issue a technical opinion regarding the question/clarification by NB RAIL.

This note is attached in Annex 1.

2. The technical scope of this technical opinion relates to the QC-INF-009 clause 4.2.2.3 “Fire protection requirements for structures” of the SRT TSI (Commission Decision 2008/163/EC).

2. Legal Background

1. Article 28(5) of Directive 2008/57/EC of the European Parliament and of the Council of June 2008 on the interoperability of the rail system within the Community¹ (Interoperability Directive).

“The Commission, when appropriate, will propose the measures needed to remedy the problems.”

2. Section 2.3.4 of Framework mandate to the European Railway Agency adopted on 13 July 2007 – C(2007)3371.

“..the Agency shall analyse the issue raised by the Commission or by the Committee under the format I.Q (interpretative question, Q.C (questions / clarifications) or similar, and provide answers to them.”

3. Analysis

1. The requirements on fire protection for structures (clause 4.2.2.3 of the SRT TSI) are not clear and leave room for misinterpretation.
2. The requirements of clause 4.2.2.3 in the SRT TSI are as follows:

“The integrity of the structure shall be maintained, in the event of fire, for a period of time sufficiently long to permit self-rescue and evacuation of passengers and staff and the intervention of rescue services without the risk of structural collapse.

The fire performance of the finished tunnel surface, whether in situ rock or concrete lining, has to be assessed. It shall withstand the temperature of the fire for a particular duration of time. The specified ‘temperature-time curve’ (EUREKA-curve) is given in the following figure. It is to be used for the design of concrete structures only.”

3. NB Rail does not suggest any resolution or interpretation to clarify the issue.

NB Rail raises the following questions to be answered:

- What is the exact requirement (protection of persons or/and protection of the structure) for maintaining the integrity of the structure in the event of fire? Do we have to use the EUREKA-curve for maintaining the integrity of the structure (protection of structure) and is there a minimum time period?

¹ OJ L 191, 18.7.2008, p. 1–45, as last amended by Directive 2009/131/EC (OJ L 273, 17.10.2009, p. 12–13).

- Do we need to use the EUREKA-curve to assess the finished tunnel surface (concrete lining)? Is the 'particular duration of time' given through the time needed for self-rescue and rescue services or through the time given by temperature limits survivable for protected or unprotected persons?
- If self-rescue and evaluation of passengers and staff and the intervention of rescue services has to be assured without endangering people, then the question is: Do we have to assess also spalling parts that can endanger persons (self-rescue or rescue services) in the tunnel and by which means?

4. The SRT TSI is currently under revision. The WP in charge of drafting the TSI has developed the following new wording for clause 4.2.1.2 'Fire resistance of tunnel structures' corresponding to clause 4.2.2.3 of the SRT TSI in force:

In the event of fire, the integrity of the tunnel lining shall be maintained for a period of time sufficiently long to permit self-rescue, evacuation of passengers and staff and intervention of emergency response services. This objective is attained when it is demonstrated that the integrity of the tunnel lining is maintained under a temperature of 450°C at ceiling level during the same period of time, which shall be in accordance to the evacuation scenario and reported in the Emergency Plan.

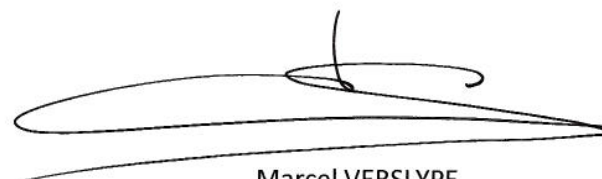
In the cases of immersed tunnels and tunnels which can cause the collapse of important neighboring structures, the tunnel main structure shall withstand the temperature of the fire for a period of time allowing evacuation of the endangered tunnel zones and neighboring structures. This period of time shall be agreed in the emergency plan. The specified 'temperature-time curve' (EUREKA curve) for the evaluation of the resistance of the tunnel is given in the following figure. This verification is not needed for rock tunnels without additional support.

5. The current text proposal of the WP revising the SRT TSI clarifies the questions raised by NB Rail.

4. The opinion

1. The question/clarification by NB RAIL does not suggest any resolution or interpretation to clarify the issue related to fire protection for structures for the SRT TSI in force.
2. In the framework of the on-going revision of the TSI, the current proposal of the WP clarifies the questions raised by NB Rail.

Valenciennes, 30 / 07 / 2012



Marcel VERSLYPE
Executive Director



ANNEX 1

Note from DG-MOVE B2 referenced D (2012) 643.673 – 30/05/2012