



RSC-G-019-A Guidelines for the Safety Assessment of Safety Cases for Testing, Commissioning, Trial Running and Passenger Service Operation for PPP Schemes

1. Introduction

The Railway Safety Act 2005 (section 36) places a general duty on railway undertakings to ensure, in so far as is reasonably practicable, the safety of persons in the operation of its railway. In order to comply with this requirement, the railway undertaking is required to implement a safety management system and to document the components of this safety management system in a 'Safety Case'. The objectives of the Safety Case are twofold:

- It shall demonstrate that the railway undertaking has the ability to properly assess and effectively control risks to the safety of persons, in compliance with its general duty; and
- It shall provide a working document by which the railway undertaking and the Railway Safety Commission (RSC) can ensure that the safety systems described in the Safety Case are being properly implemented and continue to be maintained.

These Guidelines, RSC-G-019, describe what should be contained in a railway undertaking's Safety Case for operation of infrastructure and/or rolling stock, where the railway undertaking will be implementing its activities as part of a PPP arrangement. These Guidelines additionally define the process for making submissions to the RSC and gaining the RSC's acceptance.

These Guidelines also provide information relating to the interrelation between the development of the Safety Case and the development of other safety assessments that are required to achieve the RSC's acceptance of the associated infrastructure and rolling stock, for which detailed guidance is separately provided in documents ***Guidelines for the Safety Assessment of New Infrastructure Works for PPP Schemes*** (RSC-G-017) and ***Guidelines for the Safety Assessment of New Rolling Stock for PPP Schemes*** (RSC-G-018).

2. What Should Be Contained in the Safety Case?

Section 39(3) of the Railway Safety Act 2005 identifies the following as being the principal components of the Safety Case:

- (a) a general description of the operations, or proposed operations, of the railway undertaking;
- (b) a statement of the safety objectives and safety policy of the railway undertaking;
- (c) an identification of the hazards arising from the operations of the railway undertaking, an assessment of the risks and details of the measures in place or proposed to mitigate such risks;
- (d) the management and organisational arrangements necessary for the implementation and management of railway safety; and
- (e) arrangements for monitoring, audit, and consequent review and revision of the Safety Case.

These principal components have been developed into an outline Safety Case structure as shown in Appendix 1 to these Guidelines. Whilst this structure is not mandatory on the railway undertaking, the railway undertaking should seek the agreement of the RSC before implementing an alternative structure, demonstrating that the proposed alternative will adequately cover all necessary safety management requirements to a level that is equivalent to the structure herein.

3. How and When to Make a Submission

The Safety Case must be submitted to the RSC in a timely manner to allow for review and acceptance of the Safety Case prior to the commencement of the railway undertaking's activities detailed therein. The submission must be accompanied by a report of an independent assessment of the Safety Case undertaken by a suitably qualified person, as required by section 45(2) of the Railway Safety Act 2005, and as discussed in section 6 below. Where entirely new systems are being developed, or where novel systems or management processes are involved, the scheme should be discussed with the RSC at an early stage.

Submissions should comprise 1 no. hard copy and 1 no. soft copy. File formats of soft copy documents should enable them to be readily opened, read and printed using standard proprietary software. Where other file formats are proposed, these should be agreed with the RSC in advance.

Where drawings, diagrams, charts or similar documents are submitted as part of, or as appendices to, the Safety Case, these should be of an appropriate size to enable all detail to be easily read. Whenever possible, such documents should be limited to A3 size. Where drawings need to be larger than A3, additional hard copies may need to be submitted. This should be agreed with the RSC prior to submission.

3.1 Development of a submission

To prevent issues arising at an untimely point in the project, which could lead to increased cost and delays for the railway undertaking, submissions should be made at the earliest possible time.

It should be noted that, under section 46(8) of the Railway Safety Act 2005, the RSC has up to 3 months from the date of submission of the Safety Case (or clarifications on the Safety Case as requested by the RSC), in which to issue a Safety Certificate or to issue a notice requiring reconsideration and revision of the Safety Case. However, faster turn-around times on some submissions may be achievable, particularly if they are presented to the RSC against an agreed programme, and if the programme allows for progressive RSC review of the Safety Case during its development. In all instances, project programmes should ensure that appropriate review times have been allowed for within the submission/review cycle at each submission stage. Each cycle should include sufficient time for the development of a robust Safety Case, for independent assessment, for review by the RSC, and for any subsequent iterations of the Safety Case prior to acceptance. It should be noted that no operations of any nature are permitted to be undertaken in the absence of a formally accepted Safety Case that is appropriate for those operations.

Safety Cases should be developed, submitted and accepted on a staged basis to reflect project progress through phases of operation, which would typically include testing/commissioning, trial running and into passenger service. An appropriate Safety Case must be accepted before any new phase of operation commences. For any project, it is anticipated that separate Safety Cases would be required at the following stages, as a minimum:

- prior to Testing, Commissioning and Trial Running; and
- prior to Passenger Service Operations.

Specific requirements at each stage are outlined below.

3.1.1 Prior to Testing, Commissioning and Trial Running

For a typical PPP project, there will be a process of testing and commissions of the infrastructure and rolling stock in order to confirm system performance characteristics, interfaces and interactions. This may be followed by a period of trial ('dummy') running, during which rolling stock is operated on the infrastructure, but without passengers, in order to train staff, and to test procedures and processes, thereby ensuring readiness for passenger service.

An accepted Safety Case must be in place before the commencement of any such period of test/trial of infrastructure and/or vehicles. At this stage, the Safety Case must cover the safety management processes appropriate to such testing, commissioning and trial running, sufficient to address the scope and nature of operation for the whole of that particular activity. Furthermore, the Safety Case associated with this level of operation must take full account of the unproven functionality of some the infrastructure and rolling stock systems until sufficient testing and commissioning has been undertaken. It must also take account of the need to develop and expand the scope of the operations as appropriate system functionality is confirmed (e.g. allowing increases in permitted speeds as vehicle brake tests progress, allowing movements onto longer sections of a test track as power supply interfaces are proven).

Should there be distinct phases of operation within this phase that cannot readily be contained within a single Safety Case (e.g. if the safety management arrangements for trial running are fundamentally different to those for testing and commissioning), separate 'interim' Safety Cases, specific to the different scope of operation, may be developed and submitted to the RSC for acceptance. The need for such separate Safety Cases should be identified to the RSC early in the project and reflected in project programmes.

In conjunction with the development and acceptance of a Safety Case before the associated operations are able to commence, it is additionally necessary for the rolling stock and infrastructure to be accepted for this purpose. These requirements are further detailed in section 5.

3.1.2 Prior to Passenger Service Operation

When the functionality and safe operability of rolling stock and infrastructure systems are sufficiently proven, operation may progress to the provision of passenger services. The full Safety Case needs to be presented and accepted before the commencement of such operations in order to reflect the long-term safety management arrangements that will be implemented by the responsible railway undertaking. This should build on the Safety Case(s) previously accepted for the testing, commissioning and trial running stage, but revised to reflect the change in the nature of the operation and to address the issues relating to the control of risk to passengers.

Prior to commencement of passenger service operations, the railway undertaking also requires the RSC's acceptance of the rolling stock and infrastructure for this new level of operation. This is again detailed in section 5.

4. Acceptance

Each Safety Case submitted to the RSC, in conjunction with an appropriate independent assessment report, will be subject to review within the timescale identified in section 3 above. In undertaking the review, the RSC will look for sufficient information to demonstrate that the railway undertaking will be capable of fulfilling its obligations for safety management under the Railway Safety Act 2005.

Within this timescale, the RSC will either:

- Issue a Safety Certificate, indicating acceptance of the Safety Case and thereby permitting the railway undertaking to carry out operations on the basis described. The Safety Certificate may, where considered necessary by the RSC, include conditions with which the railway undertaking must comply; or
- Issue a notice requiring the railway undertaking to reconsider elements of the Safety Case and/or amend aspects of the safety management system detailed therein.

Where revisions are required, these must be subject to independent assessment before resubmission to the RSC. (See section 6 for further detail.)

5. Interfaces with NWA and NRSA

Whilst the Safety Case is required to detail the safety management activities implemented by the railway undertaking to control the risks associated with its operating activities, it is also necessary to demonstrate to the RSC that the infrastructure and rolling stock are safe to be put into operation, either for the purposes of testing, commissioning and trial running, or for passenger service operation. These demonstrations of safety, which are requirements of sections 42 and 43 of the Railway Safety Act 2005, and the process for seeking and gaining acceptance of the infrastructure and rolling stock, are defined in the RSC's ***Guidelines for the Safety Assessment of Infrastructure for PPP Schemes***, RSC-G-017, and ***Guidelines for the Safety Assessment of New Rolling Stock for PPP Schemes***, RSC-G-018, respectively. These guideline documents provide details of the staged approach to acceptance of infrastructure through the submission of a 'New Works Assessment' (NWA), and rolling stock through submission of a 'New Rolling Stock Assessment' (NRSA), thereby enabling the necessary RSC Letters of Acceptance to be obtained prior to operation.

At the time of commencement of the testing, commission and/or trial running phase of the project, the railway undertaking with responsibility for the operation of the infrastructure must ensure that it is in possession of:

- A Safety Certificate for the associated level of infrastructure operation following the RSC's review of the Safety Case; and
- A Letter of Acceptance for the infrastructure following the RSC's review of the NWA.

At this time, it is also necessary for the railway undertaking with responsibility for the operation of the rolling stock to ensure that it is in possession of:

- A Safety Certificate for the associated level of rolling stock operation following the RSC's review of the Safety Case; and
- A Letter of Acceptance for the rolling stock following the RSC's review of the NRSA.

Where a single railway undertaking is responsible for the operation of both the infrastructure and rolling stock, covered by a combined Safety Case, a single Safety Certificate will be required. Separate Letters of Acceptance for both infrastructure and rolling stock remain necessary.

On completion of the planned testing, commissioning and trial running activities, each relevant railway undertaking must seek the RSC's authority for passenger service operation through updated Safety Certificates and Letters of Acceptance appropriate for the new level of service.

In all instances, it is the railway undertaking's responsibility to ensure that it has the appropriate level of acceptance from the RSC for its operations, and failure to do so would represent a breach of the railway undertaking's obligations under the Railway Safety Act 2005.

The requirements for RSC certification and acceptance at each phase are shown in the flowchart in Appendix 2.

6. Independent Assessment

In accordance with section 45(2) of the Railway Safety Act 2005, a railway undertaking's Safety Case must be subjected to independent assessment by a suitably qualified person prior to submission of the Safety Case to the RSC for acceptance and certification. The independent assessor (IA) must provide a report on his/her assessment and the conclusions reached, which shall be submitted with, and in support of, the Safety Case when the railway undertaking makes its submission for a Safety Certificate.

The role of the IA will be to undertake a review of the safety management processes detailed within, and supporting, the Safety Case, to a level that is consistent with the RSC's own review processes. The IA thereby supplements and supports the role of the RSC in assessment of a Safety Case. The evidence of assessment by the IA, and the depth of its review, will enable the RSC's own scope and depth of review to be reduced, typically to include the areas deemed to be of greatest potential risk.

The selected IA should be advised to the RSC at an early point in development of the Safety Case and in advance of appointment, in order to gain the RSC's agreement. Such agreement will be reliant on demonstration to the RSC that the individual has suitable competence, which requires involvement in development, application and/or assessment of safety management systems for operations of a similar scope and nature. The selected person must also be demonstrably independent of the railway undertaking and must have no direct role in the development of the Safety Case itself.

Each Safety Case submission to the RSC shall be accompanied by a report from the IA. This shall include both initial submissions and any resubmissions that are required to address a notice issued by the RSC requiring reconsideration, review and resubmission of the Safety Case (see section 4 above).

7. Further Clarification

Further clarification on these Guidelines can be sought from the RSC.