

**CONSULTATION WITH THE RAILWAY INDUSTRY: COMPLIANCE WITH
RECOMMENDATION 63 OF CULLEN PART 1 REPORT - DRAFT HSE GUIDANCE ON
THE PROVISION OF EQUIPMENT AND ARRANGEMENTS FOR THE EVACUATION
AND ESCAPE OF PERSONS FROM TRAINS IN AN EMERGENCY**

You are invited to comment on the attached guidance by 22nd April 2002. As part of the consultation exercise the railway industry is required to:

- i) review the draft HSE guidance on evacuation and escape
- ii) identify measures/initiatives which could be used to demonstrate how compliance with the HSE guidance will be achieved and suggest how this might be developed.

Note: Appendix B of the attached document will not form part of the published guidance and has only been attached for information only. It includes:

- i) The HSE interpretation of recommendation 63 of the Cullen Part 1 report on the inquiry into the Ladbroke Grove Collision and the requirements to be met.
- ii) The HSE action plan to comply with recommendation 63.

All comments should be forwarded to:

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HM RAILWAY INSPECTORATE

**HSE GUIDANCE ON THE PROVISION OF EQUIPMENT AND
ARRANGEMENTS FOR THE EVACUATION AND ESCAPE
OF PERSONS FROM TRAINS IN AN EMERGENCY**

HSE COMPLIANCE WITH RECOMMENDATION 63 OF CULLEN PART 1 INQUIRY
REPORT INTO THE LADBROKE GROVE COLLISION

CONSULTATION WITH THE RAILWAY INDUSTRY

MARCH 2002

FOREWORD

This booklet contains extracts and re-presented information from HSE guidance which deal with evacuation and escape from trains. The style and level of detail contained within its various parts may therefore vary.

The booklet is divided into four parts. Each part draws from the relevant sections of HSE guidance on emergency evacuation and escape from trains, as follows:

Part 1

Paragraphs 250-252 of the guidance to the Railways (Safety Case) Regulations 2000 including 2001 amendments, HSE ref. L52.

Part 2

Criteria 11.13 and 11.7 and related paragraphs 66-71 and 30-38 of the Safety Case Assessment Criteria prepared by HSE to establish the criteria for its assessment of Railway Safety Cases under the Railways (Safety Case) Regulations 2000.

Part 3

Various paragraphs contained within Railway Safety Principles and Guidance Part 2 section F Trains 1996, HSE ref. HS (G) 153/7, as amended in February 2002. The requirements contained within these paragraphs have been re-presented in a new narrative. This re-presentation has been necessary because there is no single section within Railway Safety Principles and Guidance Part 2 section F Trains (RSPG Part 2F) which is specifically concerned with evacuation and escape from trains and which could have been extracted.

RSPG Part 2 section F is one of a series of booklets published in 1996 providing high-level guidance and advice to those involved in the design and construction of new and altered works, plant and equipment which require approval under the Railways and Other Transport Systems (Approval of Works, Plant and Equipment) Regulations 1994. The guidance contained in RSPG Part 2 section F is principally concerned with the design features of trains and the equipment to be carried on trains including those which may facilitate evacuation and escape.

Part 4

Guidance on train/vehicle evacuation or escape to be contained in a document to be entitled Safe Movement of Trains. The Railway Safety Principles and Guidance series is being extended to cover management and operational issues and Safe Movement of Trains is currently under development as part of the extended series. It will set principles and provide guidance on the operation of trains rather than their design and construction or the equipment carried on them. It will include high-level guidance on the operational aspects of train evacuation and escape and this is extracted here. The whole document is expected to be published, following wide consultation, in late 2002 or early 2003.

References

A list of the relevant regulations, approved documents and other publications mentioned in this guidance is contained in Appendix A.

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Introduction

Background

The subject of evacuation and escape from trains has achieved high profile following the collision at Ladbroke Grove in 1999.

This publication brings together existing guidance produced by the Health & Safety Executive on the subject and new guidance contained in a document currently under development.

Evacuation in an emergency is regarded as the controlled egress of passengers from a train or vehicle to a place of safety which is supervised by railway or emergency services personnel, whereas escape in an emergency is regarded as the unsupervised egress of passengers from a train or vehicle to a place of safety. In the latter circumstances passengers may follow the advice of train signage and instructions provided, and may use on board emergency equipment, emergency door release devices, or any emergency exit windows.

This guidance is primarily intended for use by train operating companies in the development of their Railway Safety Cases. It will also be of use to rolling stock manufacturers and leasing companies and others. All employers will need to have systems in place to ensure that their staff are competent to undertake the various tasks required of them.

Recommendation 63

Recommendation 63 of Part One of Lord Cullen's Inquiry into the accident at Ladbroke Grove requires adequate guidance to be produced by the Health and Safety Executive to support the provisions in Schedule 1 to the Railways (Safety Case) Regulations 2000 "as to evacuation and escape" from trains. The guidance contained in this booklet will enable the recommendation to be achieved.

The relevant provisions in Schedule 1 to the Railways (Safety Case) Regulations 2000, as amended by the Railway Safety (Miscellaneous Amendments) Regulations 2001, are as follows:

15 Particulars of the arrangements the duty holder has established-

(c) for the provision of equipment and arrangements for the evacuation of persons in an emergency from trains operated by the duty holder; and

(d) for the provision of equipment and arrangements for the escape of persons in an emergency from trains operated by the duty holder.

Part 1

Paragraphs 250-252 of the guidance to the Railways (Safety Case) Regulations 2000 including the 2001 amendments, HSE ref. L52 (rev).

250 The safety case should describe the equipment and arrangements in place for facilitating the evacuation and escape from trains in an emergency. This covers emergency exits; facilities for the removal of windows where applicable, such as hammers; door emergency release devices, escape lighting; signs indicating emergency exits or equipment; training of on-board staff in evacuation procedures; and information and instructions to passengers. The equipment and arrangements to be provided on different types of train will depend on the type of train, and on practicalities. Equipment needs to be:

- (a) **sufficient**, so that it is available to all staff and passengers when needed;
- (b) **suitable**, so that it performs its intended function satisfactorily in the conditions in which it will be foreseeably used;
- (c) **suitably sited**, so that it is easily accessible while not providing an obvious target for vandalism; and
- (d) **easy to use**, regarding the conditions in which it may be used, including poor light.

251 The duty holder should describe the arrangements to provide suitable instructions for passengers on the means of escape and on the use of the emergency equipment provided. This includes information on the position of escape routes, escape route signs and any emergency exits, and how to use the exits in emergency, including, where appropriate, the information describing the means of releasing doors in an emergency. This information could be provided in writing, e.g. in the form of an illustrated card provided at each seat, through information notices and/or announcements. Simple, bold instructions also need to be provided on the release and use of hammers and other emergency devices, placed next to hammers and capable of being read in poor light.

252 Where changes are proposed to train interior design, equipment, or evacuation and escape procedures, the effectiveness of the arrangements as a whole will need to be carefully assessed. Amendments to the safety case will need to be considered and submitted to HSE, as necessary.

It should be noted that in this booklet minor amendments have been made to paragraphs 250 and 251 of the existing guidance. L52 is scheduled to be revised in autumn 2002 and this will take account of all appropriate changes proposed during the consultation of this document.

Part 2

Criteria 11.13 and 11.7 and related paragraphs 66-71 and 30-38 of the Safety Case Assessment Criteria produced by HSE, April, 2002

Criterion 11.13: The Safety Case should provide details of the equipment provided and the procedures implemented to enable the safe evacuation or escape when necessary from trains.

Reasons

66. Schedule 1(15)(c) and (d) requires:

"Particulars of the arrangements the duty holder has established -

(c) for the provision of equipment and arrangements for the evacuation of persons in an emergency from trains operated by the duty holder"

(d) for the provision of equipment and arrangements for the escape of persons in an emergency from trains operated by the duty holder.

66.1 In the event of an accident it is foreseeable that both passengers and employees may have to escape/evacuate from damaged parts of the train. Unless the passengers health and safety is at risk they should be encouraged to remain within the train until the emergency services arrive.

Examples of evidence

67. The procedures for ensuring safe evacuation of trains. These should cover all persons on the train and all types of trains including passenger, freight and engineer's trains.

68. Preference is given to disembarking passengers at a station or transferring them to another train to continue to the disembarkment point.

69. The procedures take account of any factors, which may present additional risks including, for example, the presence of tunnels and third-rail traction current systems.

70. The arrangements for training of staff in emergency procedures including the testing of procedures in various scenarios.

71. The equipment provided to enable the safe evacuation of trains. (refer to 11.7 - for any equipment provided staff are trained and competent in its use).

71.1 The competence would needed to cover the use of the equipment on a regular basis so that staff are sufficiently familiar and experienced to cope with it in emergencies.

71.2 Notices placed throughout the train advising passengers what action should be taken in the event of an accident and the designated escape routes.

71.3 Provision should be made for the removal of glazing where it forms part of an escape route and this should be provided in each carriage with appropriate instructions for passengers.

Railway Group Standard

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 Accident and Emergency Planning.

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Criterion 11.7: The Safety Case should describe the arrangements that are in place to ensure that the equipment to be mobilised for mitigating the consequences of incidents will be fit for purpose and available when called upon for use.

Reasons

30. Schedule 1(14) requires it.

31. It is important that the equipment to be used in the event of an incident is available when needed and is fit for purpose.

Examples of Evidence

32. Performance standards are laid down for the availability of equipment including the times to transport it to the site of the incident. This is particularly important where the equipment is owned by a third party.

33. The equipment is capable of operating in all foreseeable weather conditions.

34. The equipment is capable of operating in the local environmental conditions, expected to be experienced during emergencies;

35. The equipment is stored in an appropriate manner and location.

36. The possibility of loss of services, such as power and communications has been taken into account and alternatives supplies provided where necessary.

37. The equipment provided is compatible where necessary with that of the emergency services and that provided by other railway operators affected by the emergency.

38. Appropriate personal protective equipment (PPE) is provided for the foreseeable range of scenarios that are likely to be encountered. It is stored in suitable conditions to prevent deterioration and is replaced before its shelf life expires.

Part 3

Requirements concerning evacuation and escape re-presented from Railway Safety Principles and Guidance Part 2 section F Trains

Fire safety

On board fire safety provisions should take into account the needs of passengers and staff when evacuating their accommodation to a place of relative safety along the train or, after the train has stopped, away from the train. These needs will vary according to the type of operation, the characteristics of the infrastructure, the speed of the train, the flammability of materials and the fire load, the efficacy of any fire detection and/or suppression equipment. The need for suitable provision within the infrastructure (e.g. emergency access/egress in tunnels) should also be taken into account and an overall fire safety strategy developed.

Passengers and staff may need to be protected from the effects of fire, heat, smoke and toxic fumes to enable them to evacuate safely.

Signage and information

The means of providing advice to passengers may include, public address announcements, passenger information cards and fixed signage at appropriate locations on the vehicle, or any combination of these. Signs should be visible at all times and should be clear and unambiguous. Internationally recognised pictograms and/or multi-lingual signs should be used where appropriate.

Escape routes, equipment and procedures should be clearly signed in all circumstances. Consideration may be given to indicating automatically the escape routes to passengers.

Any advice intended for the emergency services should be of an agreed format.

Doors and glazing

In an emergency it should be possible for people to:

- (a) open designated external doors or windows, once the train is stationary,
- (b) move from one vehicle to the next; or
- (c) remove the glazing or panel etc. where it forms part of an escape route.

People should be able to exit their vehicle using more than one route. There should be no 'dead end' traps. End doors, that form part of an escape route, should be usable by passengers to evacuate.

Partitions

Partitions in passenger saloons should not obstruct escape routes and due account should be taken of their effect in this regard when the vehicle is not in an upright position.

Lighting

Passenger compartment lighting should remain operational at all times. A reduced level of lighting may be permitted in the event of an emergency to conserve the secondary power source and should last long enough to permit the train to be evacuated safely.

Lighting in connecting passageways and at steps and exits should be even, adequate and at a similar level to elsewhere in the vehicles. A reduced level of lighting may be acceptable in an emergency.

Emergency lighting provisions should include escape routes and signs.

One person or automatic operation

Where trains are operated automatically or on one-person-operated underground railways or in other circumstances that restrict evacuation, the control centre should be able to communicate with the passengers direct.

Public address

A public address system, or similar, should be provided to enable the train crew (or, where appropriate, the train control centre staff) to communicate with passengers. The system should be available during an emergency and where appropriate to members of the emergency services.

On board equipment for staff use in an emergency

Conductor rail electric traction current short-circuiting devices, track circuit short-circuiting devices and similar emergency equipment should be provided appropriate to the traction and signalling systems in use. Ladders and tools etc. may also be required.

Part 4

Guidance on train/vehicle evacuation or escape to be contained in a document to be entitled Safe Movement of Trains

Note: Guidance on the physical features of trains or vehicles provided for use in emergencies, for example door lock releases and signs, is contained in Railway Safety Principles and Guidance Part 2 section F which railway companies should consider in conjunction with this guidance.

(a) Objective

In the event of a train being involved in an emergency, the overall objective should be to minimise any further risk to the passengers and staff on the train. This may be achieved by a variety of means including:

- the provision of suitable information to inform passengers of the action to take in an emergency;
- enabling those at risk to move to a safe part of the train or, where necessary, to leave the train and move to a place of safety.

(b) Evacuation

Evacuation in an emergency is the controlled egress of passengers from a train or vehicle to a place of safety, which is supervised by railway or emergency services personnel.

(i) Planning

Plans should be in place which include arrangements for safe evacuation of passengers from trains to a place of safety in the event of an emergency occurring. Train Operators should develop such plans in consultation with other relevant bodies including the emergency services. Plans should cater for the evacuation of passengers who are mobility-impaired.

(ii) Training

All staff likely to be involved in train evacuation should be conversant with the factors they should consider and the actions they should take. The plans developed to achieve safe evacuation should be used as the basis for the training of staff. Training should be arranged periodically to ensure that staff and others likely to be involved, for example the emergency services, remain conversant with their roles and the use of emergency equipment. Practical evacuation exercises are a useful means of achieving this.

(iii) Procedures

Procedures should be developed for use in the event of a train evacuation becoming necessary, including arrangements for:

- communication between railway staff on the train;

- communication between railway staff and passengers on the train;
- communication between the train and the train movement control centre;
- communication between railway staff and any necessary emergency services;
- the train to be stopped, where possible, in a suitable place for evacuation and external assistance, i.e. not, for example, in a tunnel or on a viaduct;
- the blockage of all lines affected on which trains could approach;
- the isolation and discharge of traction current;
- the identification and use of a safe place, clear of all lines, for the assembly of evacuated passengers; and
- aisles and passageways on the train to be kept clear of obstructions, for example luggage and bicycles.

(c) Escape

Escape in an emergency is the unsupervised egress of passengers from a train or vehicle to a place of safety. In these circumstances passengers may follow the advice of train signage and instructions provided, and may use on board emergency equipment, emergency door release devices, or any emergency exit windows.

Passengers should be advised that escape from the train should only be attempted as a last resort since harm may arise from the act of alighting from the train, from live electrical equipment or from other trains which may be passing.

Notes:

“Place of safety” means a place safe from the effects of the emergency and other immediate hazards of the railway, e.g. an unaffected vehicle on the train or a place well away from railway lines.

“Railway staff on the train” means train crew and other staff on the train who are required to assist in train/vehicle evacuation.

APPENDIX A - REFERENCES

1. Railways (Safety Case) Regulations 2000
2. Railway Safety Case (Miscellaneous Amendments) Regulations 2001
3. Guidance to the Railway (Safety Case) regulations 2000 including 2001 amendments, HSE ref. L52
4. Railway Safety Principles and Guidance Part 2 section F Trains 1996
5. Railway Safety Principles and Guidance Part 3B: Safe Movement of Trains, to be published.
6. HSE Safety Case Assessment Criteria
7. Rail Vehicle Accessibility (Amendment) Regulations 2000
8. Ladbroke Grove Rail Inquiry – Part 1 Report by Lord Cullen, published 2001

APPENDIX B -

**CULLEN PART 1 RECOMMENDATION 63:- INTERPRETATION AND REQUIREMENTS
RAILWAY INSPECTORATE'S ACTION PLAN**

HSE

HM Railway Inspectorate

Provision of HSE Guidance

Emergency Evacuation and Escape From Trains

Cullen Part 1 Recommendation 63

Interpretation and Requirements

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Introduction

The Recommendation

- 1.0 This requires adequate guidance to be produced by HSE to support the provisions in Schedule 1 to the Railways (Safety Case) Regulations 2000 “as to evacuation and escape” from trains.

This report sets out the key issues which will need to be taken into account when implementing recommendation 63. It identifies the principal areas the guidance will address and outlines how the publication of the guidance and the consultation phase will be achieved.

Aims and Objectives of the HSE Guidance

- 1.1 The aim of the guidance is to provide clarification on good practice. The objective is to set safety principles for the railway industry which when applied will suitably mitigate risk to people on the railway, when the system is operating in normal, degraded, abnormal and emergency conditions as defined in RSPG.

Development of HSE Guidance on Evacuation and Escape

- 2.0 The guidance will be contained in the following:
 - i) Technical Guidance: RSPG, part 2, section F provides advice on the design and construction of new and altered works, plant and equipment (which includes trains and other rail mounted vehicles) capable of affecting the safety of the railway, tramway or other guided transport system and which require approval under the Railways and Other Transport Systems (Approval of Works, Plant and Equipment) Regulations 1994. The existing guidance deals with the majority of the issues required to ensure safety in train design and construction. Only a minor amendment is envisaged to section F, to highlight the advice it already contains on the evacuation and escape from trains. This revision will therefore be a means of ensuring that guidance, insofar as it relates to the physical features of trains or vehicles, is adequate for the purpose of achieving Cullen recommendation 63.
 - ii) Operational Guidance: A new volume of RSPG, to be titled “Safe Movement of Trains”, is currently under development but is not expected to be published until the third quarter of 2002. This guidance will include advice on the operational aspects of train or vehicle evacuation and has been specially developed in order to meet Cullen Recommendation 63. It will focus on planning, staff training requirements and the procedures that the

dutyholder should have in place in order to minimise risk to the passengers and staff onboard the train.

Changes to other HSE Guidance and Regulations

- 3.0 It has also been necessary to issue new regulations, to review and amend the existing regulations and guidance, in order to comply with recommendation 63. The following changes should be noted:
- The Railway Safety (Miscellaneous Amendments) Regulations 2001 came into force on 24th October, making certain amendments to the Railway (Safety Case) Regulations 2000, and the guidance to interpret the amendments has been reissued. The Safety Case Assessment Criteria has been reviewed and the revised version will be available on the internet by 1st April 2002.
- Railways Safety Principles and Guidance is currently being updated.

A key objective has been to ensure consistency in the provision of information and guidance in the above documents.

Timescale

- 4.0 It is required that this recommendation is met at any time up to 12 months from the publication of the Inquiry report. We have worked on the basis that this means no later than June, 2002. Therefore, the guidance should be produced and readily available for use no later than that time.

Achievement of the Recommendation

- 5.0 In order to meet the timescale for compliance with recommendation 63, HSE will collate the notes on evacuation and escape contained in the HSE regulations and the technical and new operational guidance, in a form that could be published as a free standing document. This booklet will be free of charge and will in due course be superseded by the publication of RSPG Part 2F in its revised format and by the publication of "Safe Movement of Trains".

Consultation with the Railway Industry

- 6.0 Consultation on the guidance with the industry and others concerned will take place in March 2002. The railway industry will be requested to:
- i) review proposed HSE guidance on evacuation and escape and
 - ii) identify measures/initiatives which could be used to demonstrate how

compliance with HSE guidance on emergency evacuation and escape will be achieved and suggest how this might be developed.

Review and Update of HSE Guidance

- 7.0 It will be important for RI to review the guidance periodically and to ensure good practice remains current and best practice. The working group propose the guidance is reviewed in line with current HSE guidelines, however, it will review the comments received (from the various divisions in HSE and the railway industry) during the consultation phase and recommend to the HSE if a change to the current process is required. Application of the guidance will be monitored by HSE inspectors and through feedback from the railway industry.

Enquiries

- 8.0 Any queries should be addressed to:

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LADBROKE GROVE RAIL INQUIRY

RECOMMENDATION 63: ACTION PLAN

Recommendation 63 addresses Passenger protection, evacuation and escape. It states: “The provisions in the schedule as to evacuation and escape should be supported by adequate guidance from the HSE”.

This action plan outlines how recommendation 63 is to be achieved and the date by when each task is to be completed.

TASK	HOW	BY WHEN	BY WHOM
WG to define interpretation of recommendation 63 for i) Mainline ii) LUL	Discuss and agree interpretation at WG meeting	9th October	Working Group
Confirm understanding of requirements of recommendation 63, identify key categories to be addressed and establish how guidance is to be published	a) Develop paper outlining key issues to be addressed in guidance b) Consult with key inspectors: RI1, RI2 and RI3, RD*, Solicitors Office, HSL, RIMM c) Final decision to be made by RIMM: present paper to RIMM and obtain approval	24 October 2001	Working Group/ Sector
Identify all relevant HSE guidance currently available on the subject, including RSPG*	Consult with key inspectors: RI1, RI2 and RI3	November 2001	Working Group
Secure date for publication of RSPG issue 2	Notify DIAS and agree date for publication of the guidance, within required timescales	December 2001	Working Group DIAS
Develop guidance for RSPG	As follows: a) revise RSPG Part 2F as required b) draft new volume of RSPG: Safe movement of trains	December 2001 - February 2002	Working Group
Develop stand alone booklet on evacuation and escape from trains	Collate notes from a) revised RSPG Part 2F and b) new volume of RSPG: Safe movement of trains WG to review draft and approve	March 2002	Working Group
Consult within HSE	WG to review draft with RD, Safety Case Section, RI3	March 2002	Working Group
Consult with the Railway industry to: i) Review HSE guidance on evacuation and escape ii) To identify measures/initiatives to be used to demonstrate the effective use of the HSE guidance	a) Send paper on HSE guidance to key railway organisations (e.g Railway Safety, ATOC)	March --- April 2002	Sector/ Working Group
Review comments from railway industry	Review comments received from the railway industry	April 2002	Working Group
Consult HSC	Cullen Part 1 action plan report	TBA*	RD*
Publish Guidance for the Railway Industry	To be determined by Working Group	May/June 2002	Sector

Develop SIM*	Develop guidance for inspectors to outline: 1. What inspectors can expect from duty holders. Including standards and quality of measures in place to ensure safe evacuation and escape from trains. 2. Recommendation 63, factors driving decisions taken and document process undertaken	July/August 2002	Sector
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WG*: Train Interiors Safety Working Group

RSPG*: Railways Safety Principles and Guidance

SIM: Sector Information Minute

RD*: Railways Directorate

TBA*: To be advised