

RAILWAY SAFETY

Working for a safer railway

SAFETY JUSTIFICATION**ISSUE ONE****DOCUMENT INFORMATION**

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PART 1 – SCOPE OF SAFETY JUSTIFICATION

Material currently within the existing issues of GK/RT0031, GK/RT0032, and GK/RT0035 has been incorporated into the new issue of GK/RT0037. Whilst GK/RT0035 will be withdrawn, documents GK/RT0031, and GK/RT0032 are being revised for re-issue. As part of this process two new documents, GE/RT8048 and this document, GE/RT8034, will also be created. Where required, separate safety justifications will be produced for all these documents in due course. (Re-issue dates for all the standards affected have been coordinated.)

This safety justification applies to the whole of GE/RT8034, *Maintenance of Signal Visibility*. The changes introduced focus an existing suite of signal related documents more effectively upon discrete groups of users, and thereby remove overlap and repetition. The relevant existing sections of GK/RT0037, issue 3, have been transferred to form the basis of this new standard, and new measures have been introduced, as explained in Part 3 below.

The purpose of this standard is to define requirements to ensure that the visibility and alignment of signals are not adversely affected during the life of the equipment. Within the scope of this document the term 'signals' is taken to include fixed signals, signs that perform the function of signals, and associated indicators.

The scope of this standard relates to the identification, assessment and removal of the causes of deteriorated signal visibility. Such causes include technical factors, such as misalignment of the signal away from the design alignment, and environmental factors such as vegetation growth. It does not deal with the initial positioning of signals, the re-assessment of signals following a SPAD, the management of signal structure clearances or the inspection and management of signal structures. The principle behind this standard is that the driver of a train shall be presented with signals that have the visibility required by the Railway Group Standards to which they were designed and positioned.

PART 2 – RISKS BEING CONTROLLED

Signals which are obscured or otherwise difficult to view, increase the likelihood of a signal being passed at danger, SPAD. As a consequence, the risk is increased of collision with people, objects or another train, in turn leading to a higher risk of derailment. Such accidents have a considerable potential to cause fatalities.

In the 2 years from January 1999 there have been 128 Category A 'Misread' SPADs, 37 of these were

attributed, at least in part, to signal sighting, 47 to reading across, and 23 to sunlight. (Many SPAD forms report against more than one of the cause categories.) Over the same period, more than 8% of Category A 'Disregard' SPADs, were attributed to sunlight, poor sighting and/or an imperfectly exhibited signal. Although none of these categories is exclusively related to the failure to maintain signal visibility in the as designed or installed state, the data indicate that this is a significant contributory factor in many SPADs.

PART 3 – SUMMARY OF CONTROLS

Although existing documents such as GC/RT5161 '*Station Design and Maintenance Requirements*' deal with related issues, GE/RT8034 was drafted from scratch by a drafting group, brought together from a wide range of backgrounds, and does not, with the exception of relevant sections within issue 3 of GK/RT0037, supersede any existing Railway Safety documents. For this reason, most of the measures introduced are new.

The standard mandates the maintenance of signal visibility by a process of regular inspection, and controlled co-ordinated response to reports of obstructed signals. The risk identified in part 2 above is mitigated by a series of measures that cover the following:

- This standard requires a regular programme of inspections to be established, and also defines procedures for the identification and control of changes in the vicinity of signals. It lays down procedures regarding the reporting of deficiencies, and ensures that the resulting assessments not only take place, but are also fed back to the originator of the deficiency report.
- The requirement for inspections mandates both static and dynamic types, and explains what should be checked in each case.
- For platform starting signals it is a requirement that visibility should also be checked from the viewpoint of the train dispatch staff.
- In all cases, inspection teams must have made available to them, existing records, reports and photographs, where these exist.
- The frequency of these inspections and the competency required of those performing the work are also covered.
- When a duty holder becomes aware of changes in the vicinity of a signal, he is required to report this to the infrastructure controller. Such changes might include; building or structural works, vegetation growth, changes to OLE equipment or the introduction of new light sources, such as retailer's neon signs. A duty holder becoming aware of an increase in line speed, changes in train stopping positions, or the introduction of classes of rolling stock new to that route, must report these to the infrastructure controller. It can also be the case that changes to the signal intended to make it more resistant to vandalism can adversely affect visibility, so this is also a listed cause.
- Measures in section 7 of the standard recognise that it is important to have a co-ordinated approach to the reporting and remediation of signal sighting defects.
- Section 7 also considers the details of the assessment process itself, together with mandating requirements for final feedback and monitoring.
- It is a requirement that records be kept throughout the process, and subsequently made available when required for maintenance or inspection.
- Finally, although it is considered that a signal sighting committee will normally be involved in any assessment, flexibility is built in to allow alternatives where this is appropriate.

PART 4 – COSTS AND BENEFITS

This issue of GE/RT8034 builds on current good visibility maintenance practice, but could generate costs where the inspections required by this standard, reveal works required to maintain signal visibility that had not previously been identified. Generally the nature and extent of works required to

maintain signal visibility are already well known, and relate primarily to regular vegetation clearance and checks on signal alignment. Few additional major works, to alter or remove obstructions such as structures for example, will be required as a result of the issue of this standard.

Costs will certainly arise however, because of the increased requirement for inspection and record keeping. The requirement for duty holders to establish co-ordination and contact roles will also result in costs being incurred.

Benefit will be realised in the reduced risk of fatality, as a consequence of fewer signals being passed at danger because of obscuration or poor visibility.

PART 5 – CONCLUSIONS

Once the signalling infrastructure has been established by reference to other standards, this standard mandates the process of inspection, notification and coordination necessary to ensure the visibility of the signal as intended at signalling scheme approval.

This standard is justified because the measures that it contains will reduce the likelihood of a SPAD, and will in so doing, also reduce the subsequent risk of fatality arising from collision or derailment.

PART 6 - REFERENCES

GK/RT0031 – Lineside Signals and Indicators
GK/RT0032 – Provision of Lineside Signals
GK/RT0035 – Layout of Lineside Signals
GK/RT0037 – Signal Sighting
GE/RT8048 – Positioning and Labelling of Lineside Telephones