



Case study

Railtrack device: safety case development

THE CHALLENGE

Our client had developed an innovative mechanical device which could be installed to railway line junction to switch between one track and another (see *Figure 1*). It can be installed at either the 6ft or 4ft positions, and can be installed on both mainline and metro railway systems.

Because of the bespoke nature of the ground connections, they needed to conform to the stringent safety requirements set out in the product Requirement Specification. Our client was therefore required to develop a Safety Case demonstrating this compliance. To support this, Frazer-Nash were appointed to provide a comprehensive reliability assessment of the system - from the initial HAZOP study through to detailed fault tree studies.

OUR SOLUTION

Frazer-Nash had previously provided a reliability assessment for the 6ft connection, but our client also required a similar assessment for the 4ft application.

We began by conducting a detailed and comprehensive study the system reliability, which included System Hazard Analysis and the production of a detailed failure modes and effects analysis. For all the function hazards identified, fault trees were produced and analysis undertaken. This analysis provided a quantitative failure rate which we then compared against the targets defined in the Requirement Specification. This provided traceable, quantitative evidence that the top level, catastrophic safety requirements have been identified and met.

The results of the analysis are summarised in the Hazard Log and can be used to form part of the Safety Case for the system.

BENEFITS

The comprehensive analysis we undertook on our client's system provided an independent assessment as to the device's safety and reliability, by revealing potential latent system failure modes which could be quantified and addressed.

Our reliability assessment enabled our client to gain a deeper understanding as to the safety, reliability and availability of their system. This information will allow the system risks to be minimised whilst maximising availability and operational efficiency of the system. Our final report will now be used to support the required Safety Case for the system's 4ft application.

Client

Confidential

Business need

To provide an Independent safety assessment of railtrack device to support a Safety Case.

Why Frazer-Nash?

Frazer-Nash has considerable experience in safety case development including HAZOP/ID, FMEA & availability, and reliability & maintainability analysis.



Figure 1: Railway points

For more information please contact **Richard Jones** on **0117 9226242** or email r.jones@fnc.co.uk