

A PROBABILISTIC ASSESSMENT OF BLOW-OFF DEWIREMENT AND ASSOCIATED ALLEVIATION METHODS

A number of blow-off dewirements have occurred during storm conditions on the LM Region of the West Coast Main Line since 1962.

This report assesses the risk of dewirement due to strong winds using a probabilistic approach. An assessment is made of current blow-off alleviation methods: increased contact wire tension and reduction of span length. In addition, the benefits of a novel alleviation method – that of midspan offsets – are assessed.

Of the existing methods, reduction of span length was found to be the most dramatic for the reduction of blow-off probabilities. The alternative method, that of offsetting the contact wire to the south-west, was found to be at least as advantageous as supertensioning when offsets of 100mm or more are considered.

The report also indicates some areas in the wind loading code of practice where some increased refinement is required.