



## Ufton Level Crossing report and recommendations

Rail Safety and Standards Board (RSSB) has issued to the industry its report of the formal inquiry into the Ufton rail accident.

The accident was caused by a collision with a road vehicle and led to derailment of the London to Plymouth train at Ufton Level Crossing in Berkshire on 6 November 2004. HSE reported that early indications were that a car driver stopped his vehicle on the crossing before the barrier sequence commenced. <http://www.hse.gov.uk/railways/uftonnetvet/interim.pdf> Nevertheless, following normal practice the formal inquiry was convened to establish if there were any safety lessons for the rail industry.

A panel of independent experts appointed by RSSB has examined the accident, which tragically resulted in the deaths of seven people. As with all such inquiries, the panel's task was to establish the immediate and underlying causes of the accident and make recommendations to prevent, or reduce the risk of, recurrence.

### Sequence of events

The train journey between London Paddington station and Ufton Automatic Half Barrier (AHB) Level Crossing had been uneventful. At a speed of just under 100mph, the train passed the 'strike-in' point for the level crossing at 1811 hrs, initiating the sequence of lights, audible alarms and lowering of barriers at the crossing.

On reaching the level crossing, the train struck a Mazda 323 car that was obstructing the line and which had been stationary prior to the start of the barrier closure sequence. The collision caused the leading pair of train wheels to derail.

The derailed wheels ran for about 95 metres in a line almost parallel to the rails until the front power car reached a set of facing points. The wheels were then guided to the left by the diverging rails of the points, causing the following wheels to derail and resulting in the catastrophic derailment of all the vehicles in the train.

Extensive damage was caused to the vehicles, particularly those in the centre of the train. The car was broken up by the impact, with component parts being carried forward by the train and scattered along some 100 metres of track.

The response to the accident by the railway companies and the emergency services was both rapid and efficient. The evacuation of the passengers from the train, for the most part, proceeded smoothly.

Sadly, five passengers and the train driver died in the accident, as well as the driver of the car. A total of 71 passengers, including 18 who were badly injured, were conveyed to hospital for treatment. Many of the remaining passengers received minor cuts and bruises, for which they were treated locally.

## **Conclusions**

The initial derailment occurred as a result of the train colliding with a motor car, causing the flange of the left hand wheel of the leading bogie of the front power car to climb over the left hand rail. The car had been driven on to the level crossing prior to the commencement of the closure sequence and had come to a stand. It was stationary at the time of impact.

The subsequent derailment of all the vehicles occurred when the train shortly afterwards reached facing points which caused the derailed left hand wheel to follow the left hand stock rail of the points pulling the trailing axle of the leading bogie, and then the bogies of all the following vehicles, into derailment.

The underlying cause was seen as lying beyond the direct control of the railway industry.

A coroner's inquest will be held into all the fatalities in the accident.

## **Recommendations**

Whilst the initial derailment was caused by the presence of a car on the fully functional level crossing, the inquiry revealed a number of issues relating to road risks for the industry to consider with other authorities. The inquiry makes recommendations for the industry to consider in order to reduce the risk of derailment and to mitigate consequences of such events. The recommendations are summarised below and include an indication of the organisation which will be in the lead for considering them, taking into account their reasonable practicability.

## **Level Crossings**

### **Closure**

- Establish a team dedicated to the implementation of Network Rail's level crossing strategy regarding crossing closures. – Network Rail and relevant road and planning authorities
- Where considerable safety expenditure is justified, identify opportunities where a bridge could be constructed to achieve crossing closure. – Network Rail
- Investigate means of achieving the closure of Ufton level crossing. – Network Rail and relevant road and planning authorities

### **Risk assessment**

- Include in the Network Rail level crossing risk assessment process, factors such as the proximity of track features that could exacerbate the effect of a derailment. – Network Rail and RSSB

### **Design improvements**

- Conduct research to establish whether a practical system can be developed to detect and to provide a timely warning to train drivers of an obstruction at AHB level crossings. - RSSB and Network Rail
- Review and modify the operation and design of the AHB level crossing emergency telephone system. – Network Rail

### **Strategic issues**

- The work of the National Level Crossing Safety Group should be vigorously supported and given high priority for funding and resources. – Network Rail, RSSB and DfT

### **Road surface**

- Produce and apply a policy regarding relative positioning of different types of level crossing road surface units. – Network Rail

## **Trains**

### **Reducing the risk of derailment**

- Review the current exemption for axle loads greater than 17 tonnes from the general requirement to fit obstacle deflectors to new-build leading vehicles. – RSSB
- Investigate the feasibility of modifying the front end shape of HST power cars and/or fitting an obstacle deflector in order to reduce the derailment risk and implement, if practicable, on power cars undergoing a life extension programme. – Train operating companies and rolling stock leasing companies

### **Protection of passengers and crew**

- A programme of research should continue to be pursued to assess:
  - (a) Whether there could be a net safety benefit in fitting seat belts in vehicles.
  - (b) The level of seat belt usage that would be required to justify the costs of fitting and maintaining the belts.
  - (c) Whether that percentage usage is achievable in long term service operation.

This information should form part of the input to a study to determine whether the fitting of seat belts is reasonably practicable. – RSSB

- Extend requirements regarding laminated windows to cover vehicles undergoing major internal refurbishment and accelerate the research on the provision of windows for emergency egress. – RSSB
- Review the programme for RSSB's research project on the role of couplers and bogie retention in order to identify possible opportunities to bring forward the completion date of the work. – RSSB

### **Emergency procedures and escape**

- Consider the application of photo-luminescent markings to emergency equipment so as to enable passengers to locate it in poor lighting conditions. – Train operating companies
- As provided on the train involved in this accident, provide safety information in the vicinity of passenger seats where it is practicable to do so. – Train operating companies
- As provided on the train involved in this accident, provide light sticks in all trains where emergency lighting is not available– Train operating companies
- Provide emergency lighting for all new passenger vehicles and for those undergoing major internal refurbishment. – RSSB and Train operating companies
- Extend current research to investigate the design of window breaking hammers for use in emergencies. Where toughened glass windows are double glazed, signing should indicate this fact and the appropriate action needed by the passenger to break and remove both panes of glass. – RSSB

### **Rescue and recovery**

#### **Training of on-train staff**

- Review on-train staff responses to an accident, with particular emphasis on the evacuation of the passengers and the protection of the line. Lessons learned should be used to reinforce training programmes, exercises and briefings. – First Great Western
- Give consideration to including, in the training of on-train staff, the opportunity to experience the conditions inside a coach that has rolled over. – First Great Western and other train operating companies
- Determine if there are elements of First Great Western's emergency training of on-train staff that could be used by other passenger train operators. – Train operating companies

### **Procedures following accidents**

- Review arrangements for the attendance of specialist investigation organisations, derailment and crash worthiness specialists at an accident site. – Network Rail
- Review the emergency command structure in respect of how it is applied to major rail accidents. The review should consider all aspects, especially the seniority, competence and experience of appointees to the structure and the communications between the different levels. – Network Rail

The rail industry parties to whom the recommendations are directed will consider the report and its recommendations and report to RSSB on their response. Where industry parties accept recommendations they will also report progress on their implementation. RSSB tracks all inquiry recommendations and reports annually on their progress.