

RAIB Bulletin 05/2011

Passenger train collision with car on user worked crossing, Wensleydale Railway, 1 August 2011

Description of the accident

- 1 On 1 August 2011 a steam hauled passenger train on the 'heritage' Wensleydale Railway in North Yorkshire and a Volkswagen 'Lupo' car collided on a user worked level crossing¹. The front of the car was extensively damaged but its driver was not injured. The train sustained only superficial damage and was not derailed. No one on the train was injured.
- 2 The train was the 13:00 hrs train from Redmire to Leeming Bar and consisted of an 0-6-2 tank locomotive and four coaches. The locomotive was running with its bunker leading². Figure 1 shows the locomotive.



Figure 1: The locomotive involved in the collision

- 3 The car driver reported that he was edging out onto the crossing trying to see if the line was clear when the train appeared from behind the vegetation. The train struck the front of the car and the car was pulled to one side as it made further contact with the side of the locomotive and the first coach.

¹ A user worked level crossing is one where the railway crosses a private road and where the road user must open and close the gates when crossing the line.

² A tank locomotive is a steam locomotive which carries its coal and water on the locomotive rather than in a separate vehicle (the tender). The coal bunker is behind the cab and at the opposite end of the locomotive to the chimney.

- 4 The train crew did not see the car approaching the crossing and were first aware of the collision when they heard the impact. The driver then applied the brake and brought the train to a stand.
- 5 The train was not fitted with a speedometer, but the locomotive crew estimated that the speed was about 18 mph (29 km/h) at the time of the collision. The permitted speed on this section of line was 25 mph (40 km/h), though the train had just left a 15 mph (24 km/h) speed restriction which ended 150 metres before the level crossing.
- 6 The level crossing is known as Fox Park No.1 user worked crossing and provides access to three farm properties from a nearby public road, Sink Lane. Figure 2 shows the car and train where they came to rest after the accident.



Figure 2: The accident site (photo courtesy of BTP)

Findings of the RAIB

- 7 The visibility from the car as it approached the crossing towards the train was obscured by vegetation (figure 3). The gate at the side of the line that the car approached from was missing and the gate at the far side had been left open. Gates at user worked crossings are normally left closed across the road. The road user must stop and open both gates before crossing. Signs at the crossing remind users to close the gates behind them. If the gates are left open there is a risk of animals straying onto the line or of a road user driving onto the crossing without stopping to check that the line is clear. As there were no gates closed across the road, the car driver did not have to leave his vehicle to operate them. If he had done so, the train would have been visible from the far side of the line (figure 4). He would also have been more easily able to hear the train's warning whistle as it approached the crossing. Witnesses stated that the whistle was sounded.



Figure 3: View from the position of a car approaching the crossing, 3 metres back from the nearest rail, looking towards Redmire (ie looking in the direction that the train approached from)



Figure 4: View towards Redmire from the far side of the line

- 8 User worked crossings are normally only provided on private roads and are only intended to be used by people authorised to use that road. These people are known as the authorised users of the crossing. The car driver lived at a farm which was accessed via the private road over the crossing and so was an authorised user of the crossing. The Wensleydale Railway had written to authorised users of their user worked crossings, including the users of Fox Park No.1 crossing, on 16 July 2011 to remind them of the correct way to use the crossing and their obligation to do this.
- 9 The RAIB measured the distance along the line from the crossing to the first point at which the train would have been visible to the car driver. This distance was 39 metres (measured from a position 3 metres back from the nearest rail). Guidance published by the Office of Rail Regulation (ORR), 'Level crossings: A guide for managers, designers and operators, Railway Safety Publication 7'³ states that the decision point⁴ should be at least 3 metres back from the nearest rail for this type of crossing.
- 10 The ORR guidance states that there should be a minimum of 20 seconds warning of an approaching train. As the line speed at Fox Park No.1 crossing was 25 mph (15 mph to a point 150 metres from the crossing), this means there should be a minimum of 197 metres visibility of the approaching train from the decision point.
- 11 Where visibility is restricted, as in this case, the ORR guide lists additional protective equipment that can be provided. For low speed lines with infrequent services, an audible warning given by an approaching train at a whistle board can be used for this purpose. The Wensleydale Railway had provided a whistle board 185 metres before the crossing.
- 12 The safe use of user worked crossings is reliant on the gates being kept closed across the road. This means that the road user must get out of their vehicle and cross the line on foot. This gives them an opportunity to see along the line and to hear any approaching trains, but a train might approach after they have returned to their car, so it is still necessary to look up and down the line before crossing.
- 13 One of the gates at Fox Park No.1 crossing was missing at the time of the accident and had been missing for at least three months, according to the Wensleydale Railway. The Wensleydale Railway had noted that it was missing during one of its inspections, but had not yet replaced it.
- 14 The other gate at Fox Park No.1 crossing was left open by the users of the crossing and had been left open for some time. Figure 5 shows the gate with vegetation growing through the bars. The Railway Clauses Consolidation Act 1845 makes it an offence for the user of this type of crossing to fail to close the gates after crossing the line. Signs on each side of the crossing state that the penalty for not closing and securing the gates is £1000. Failure to obey these signs is an offence under the Transport and Works Act 1992.

³ Available at http://www.rail-reg.gov.uk/upload/pdf/level_crossings_guidance.pdf

⁴ The decision point is defined in the ORR guide as the point at which a decision to cross or wait can be made in safety.



Figure 5: Gate on the farm side of the crossing (courtesy of BTP)

- 15 The ORR has produced a guidance document 'Using level crossings safely'⁵ for the users of all types of level crossing. This reminds users to close the gates behind them.
- 16 The Wensleydale Railway had carried out risk assessments of this crossing in 2008 and 2011. The 2008 assessment was made following a site visit in January, when the line side vegetation had died back for the winter. The notes of the level crossing risk assessor stated that visibility towards Redmire was restricted by line side vegetation and that this should be kept cut back. The risk assessment exercise included all of the railway's crossings and Fox Park No.1 crossing had the highest risk score of all of them. The RAIB has been unable to establish whether the vegetation was cut back following the 2008 assessment.
- 17 In January 2011 the Wensleydale Railway revised its risk assessments for level crossings. The assessor rode in the cab of a train to make the assessments. Fox Park No.1 crossing was now judged to be in joint fifth place in the risk ranking, the assessor having judged that the visibility was better than in 2008. No action was identified for any specific crossings during this exercise.
- 18 The Wensleydale Railway cut back the vegetation at Fox Park No.1 crossing during October 2010. No further clearance of the vegetation had taken place at the time of the accident. Figure 3 shows the view from the position of the car at the time of the accident looking towards the Redmire direction (the direction the train approached from).
- 19 The ORR issued prohibition notice SJT/19/08/11/1 on 19 August 2011 prohibiting the Wensleydale Railway from operating trains at speeds of over 10 mph (16 km/h) over all of its user worked crossings and foot crossings, including Fox Park No.1 crossing. The prohibition was due to sighting distances for users of the crossings being inadequate to allow them to see an approaching train and cross safely due to the vegetation.

⁵ Available at http://www.rail-reg.gov.uk/upload/pdf/using_level_crossings_safely.pdf

Previous similar incidents

20 A tractor and a train were in collision at Flood Bridge user worked crossing on the Wensleydale Railway on 30 June 2011. This accident was not reported to the RAIB but the ORR visited the Wensleydale Railway shortly afterwards. The ORR found that there were significant shortcomings in the Wensleydale Railway's safety management system (SMS), including the management of level crossings, and issued improvement notice no. I/4256054 on 14 July 2011. This required the Wensleydale Railway to prepare a comprehensive and robust SMS covering all aspects of its undertaking. This improvement notice was to be complied with by 31 October 2011.

Conclusion

21 The RAIB has decided not to conduct a full investigation. This is because the RAIB does not consider that it would produce safety improvements beyond those which complying with the ORR prohibition notice and improvement notice would provide.

Learning points

- 22 The RAIB believes that the learning points from this accident are that heritage railways should:
- Review their current SMS to ensure that it adequately covers the management of level crossing risks, including user worked crossings. The ORR considered that the SMS at the Wensleydale Railway did not adequately cover the risks arising from user worked crossings.
 - Ensure that actions derived from level crossing risk assessments are carried out, in particular routine vegetation clearance during the growing season to provide adequate sighting lines to ensure warning times are sufficient.
 - Ensure that positive action is taken regarding users of user worked crossings where the gates are left open. The safety of user worked crossings is reliant on the gates being left closed.
 - Regularly write to the authorised users of crossings to remind them of their obligations and draw their attention to the ORR guidance on this - 'Using Crossings Safely'.

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