Rail Accident Investigation Branch

RAIB Bulletin 03/2012

Accident at Margam Yard, near Port Talbot 12 June 2012

Description of accident

1 At approximately 10:50 hrs on Tuesday 12 June 2012, a member of staff was seriously injured when he was crushed between two wagons while carrying out shunting work on a maintenance siding operated by DB Schenker at Margam Yard, near Port Talbot, West Glamorgan, in South Wales.

Background

2 The wagons involved were of the BYA type with a buckeye coupler at each end (figure 1). These couplers are designed to engage automatically provided a locking pin has been raised on each coupler and the couplers, which can swing from side to side, are centred.

Figure 1: Incident wagons with buckeye coupler

3 An adapted rubber-tyred forklift was used to push the wagons (figure 2). As was authorised by DB Schenker at this location, the forklift was not coupled to the wagons, the wagons' air brakes were inoperative and a member of staff walked alongside a wagon's handbrake to apply this as necessary.

Figure 2: Adapted forklift and wagon handbrake

4 Three members of staff were involved: the forklift driver, the 'designated person' (the term used at this location for the person in charge of shunting activities) and the injured party. They were all of the same grade and routinely undertook the repair and maintenance of wagons together with associated shunting work.

5 The shunting operation which led to the accident was usually carried out several times each day but normally only involved two people, the designated person and the forklift driver. Familiarity with the process meant that there was no formal allocation of duties for each shunting movement and, during the movement which led to the accident, a third person had decided to assist. There was no unusual feature which required his involvement.

Sequence of events

6 The accident occurred when two wagons were being coupled together (described in this bulletin as wagon A and wagon B, figure 3). After an initial attempt to couple the wagons failed because the couplers did not engage, the designated person and the injured party stepped between the wagons to realign the couplers. The designated person, located on the side of the siding from which he was able to give hand signals to the forklift driver, reported that he saw the injured party move to the opposite side of the siding and into a position clear of the impending shunting movement.

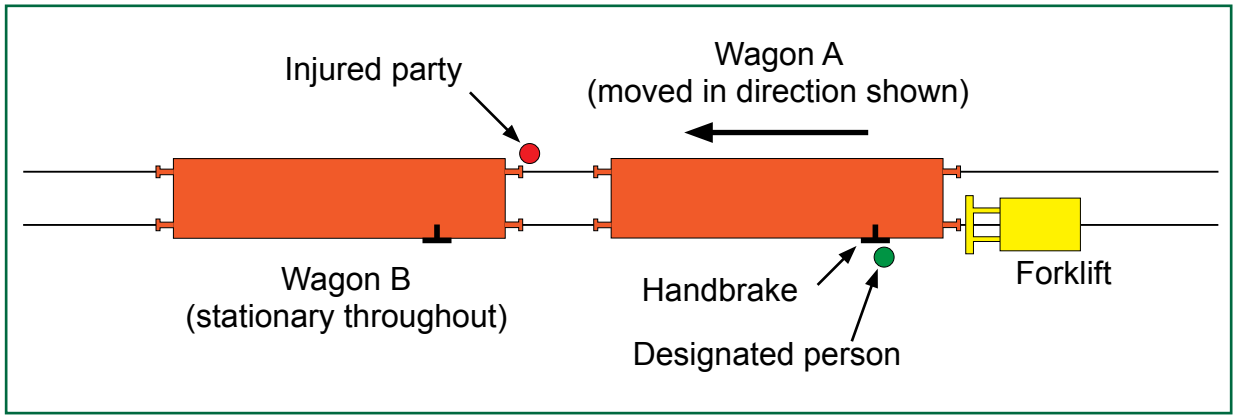


Figure 3: Plan showing situation immediately before the accident

7 The designated person then walked along the siding to the handbrake of wagon A (figure 2), released the brake and instructed the forklift driver to push wagon A against wagon B (figure 4). While this was happening, and unknown to the designated person, the injured party moved into the gap between the wagons. The injured party was crushed between the buffers of the two vehicles when the forklift pushed the wagons together.

Figure 4: Reconstruction showing situation immediately before the accident

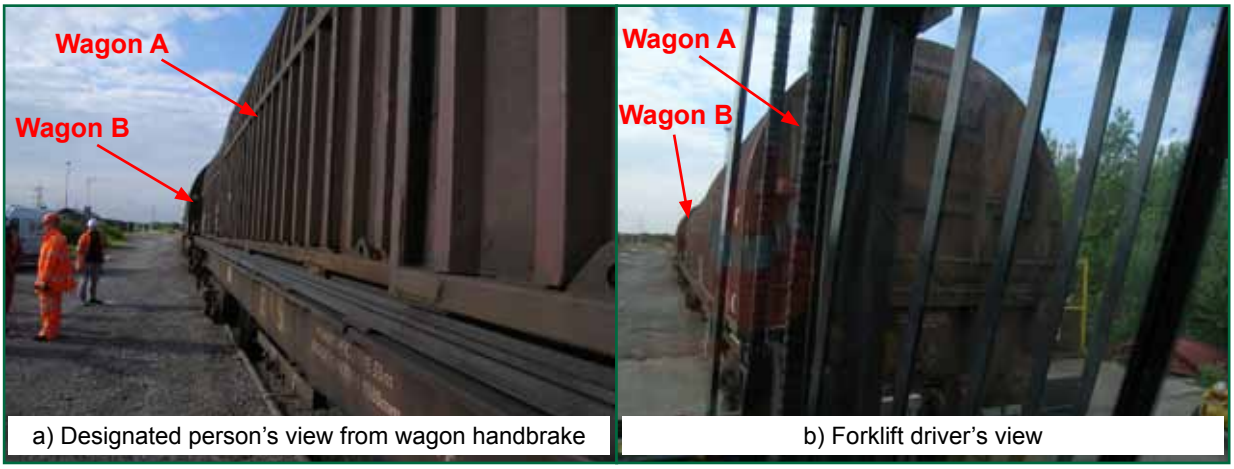
RAIB investigation

8 Witness evidence indicates that, before walking to the handbrake, the designated person had spoken with the injured party about the impending shunt move. The injured party had confirmed that he (the injured party) was clear of the wagons and that he understood the designated person was going to start a shunt move.

9 The injured party reports that he was standing clear of the shunting operation and watching both wagons until, very shortly before the wagons coupled, he moved to a position where he could concentrate on looking at the stationary wagon (wagon B). The grease mark on his overall (figure 5) shows that he was standing upright and very close to the track when he was crushed between the buffers. It is therefore probable that, when moving to concentrate on the stationary wagon, he misjudged his position or momentarily forgot about the moving wagon.

Figure 5: Grease mark from buffer on injured party's overall

10 A reconstruction showed that, when walking to the handbrake and then standing at this position to instruct the forklift driver, the designated person could not see the area between the wagons (figure 6a). In addition, the forklift driver could not see this area (figure 6b).



a) Designated person's view from wagon handbrake

b) Forklift driver's view

Figure 6: Visibility when shunt move started

11 Inspection of the buckeye couplings showed that they had engaged correctly, with a gap of about 150 millimetres between the buffers, during the shunt move in which the injury occurred (figure 7a). If the couplers had not engaged, it is possible that they would have behaved in the way shown on figure 7b. If this had happened, the gap between the buffers would have been about 30 millimetres and it is unlikely that the casualty would have survived.

Observation

12 The injured party was wearing red overalls with reflective stripes around the ankles, but without the high visibility orange colouring generally worn by staff undertaking shunting work at other railway locations. Witness evidence showed that maintenance staff undertaking shunting at Margam did not always wear orange high visibility clothing. DB Schenker's safe system of work for the maintenance siding required staff to wear 'high visibility clothing' but did not specify details of this clothing.

Figure 7: Buckeye coupling engagement

13 Orange high visibility clothing would not have prevented this accident but can prevent accidents in other circumstances. DB Schenker has already stated that it will be reviewing the use of such clothing by its maintenance staff so the RAIB is making no formal recommendation on this matter.

Learning points

14 The RAIB has decided not to conduct a full investigation because it does not believe that this would identify any significant new lessons relating to railway safety. However, the accident reiterates the importance of ensuring that:

- staff must never go between vehicles unless they are absolutely sure that the vehicles will not move;
- when working in a team, staff must never go between vehicles without reaching a clear understanding with the person controlling the movement of vehicles that it is safe to do so; and
- shunting movements should involve only the minimum practical number of staff with other people remaining well clear of the movement.

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