

Collision between two freight trains in a work site near Ivybridge, Devon, 27 February 2016

1. Important safety messages

It is important for the safe movement of trains in work sites that drivers comply with the rule to proceed at caution, so that the train can be stopped within the distance that can be seen to be clear. The train's speed must be controlled in advance of features that alter the sighting distance ahead.

To do this effectively, a driver must have:

- good understanding of the train's braking performance
- sufficient knowledge of the geography of the line being driven, to know where to apply the brakes ahead of changes in the track's curvature.

Drivers must always proceed at no greater than 5 mph (8 km/h) unless the Engineering Supervisor (ES) or Safe Work Leader (SWL) has given specific instructions on the maximum speed to be applied for the movement. Even if the ES or SWL has authorised a higher maximum speed for the movement to an exact location, drivers must still proceed at caution throughout.



The derailed locomotive and the rear wagon

2. Summary of the accident

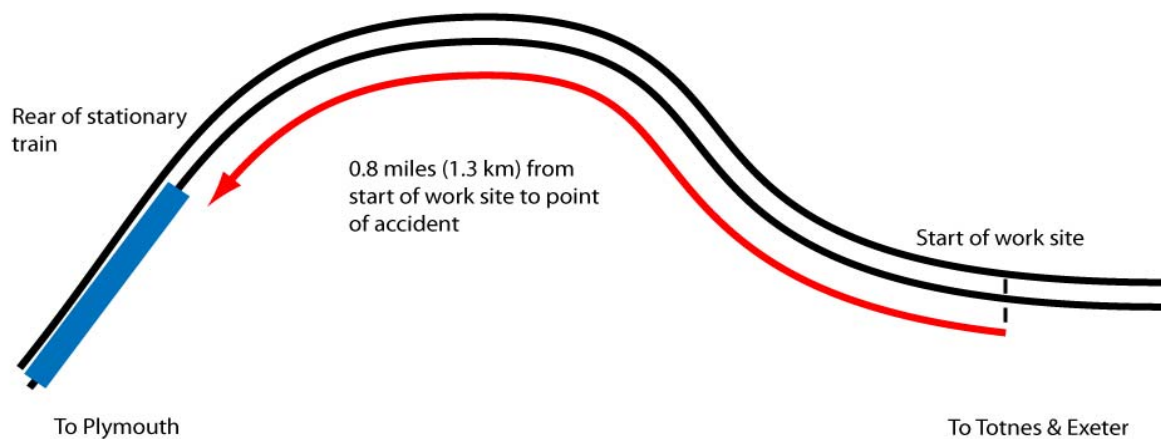
A freight train operated by Colas Rail collided with the rear of a stationary freight train while travelling at a speed of about 10 mph (16 km/h) within a work site on the Down Main line close to the old Ivybridge station, between Totnes and Plymouth. No one was injured although the freight train driver was badly shaken. The locomotive and the wagon immediately behind it derailed along with the rear wagon of the stationary train. These vehicles and the track beneath them were damaged.

3. Cause of the accident

The accident happened on a section of railway line that was closed to allow engineering work to take place. This type of closure is referred to as a possession and a PICOP (Person In Charge Of the Possession) is responsible for it. Areas within the possession where the work is taking place are delimited by illuminated marker boards at each end. These areas are referred to as work sites and an ES or SWL is responsible for each work site, including all train movements made within it. The rules that apply to the PICOP, ES or SWL and train driver for working in possessions and work sites are defined in the Rule Book (GE/RT8000/HB11 Handbook 11 for the PICOP, GE/RT8000/HB12 Handbook 12 for the ES (and SWL) and modules GE/RT8000/T3 and GE/RT8000/TW1 for the train driver. The [Rule Book](#) is published by RSSB).

The freight train had travelled from Westbury during the night and had stopped at Totnes where the PICOP had taken the possession around the train. At about 07:00 hrs the PICOP authorised the train to travel to the start of the work site at Ivybridge, where a track renewal was planned to take place. The train then departed and travelled about 11.5 miles (18.5 km) to the start of the work site.

Once the train had stopped at the entrance to the work site about 35 minutes later, the driver was handed a two-way radio. The ES responsible for the Ivybridge work site used this radio link to brief the driver. Before the ES could allow the train into the work site, the Rule Book required him to brief its driver on the movement to be made. This brief must include information on where the movement is to go to and the maximum speed it can be made at (reference GE/RT8000 handbook 12, section 6).



Simplified diagram showing location of the accident

The ES briefed the driver and authorised him to enter the work site and draw up behind a stationary train ahead. The ES did not tell the driver what speed he was authorised to make the movement at, nor did he provide the location of the train ahead nor give a mileage to go to. The driver did not query the missing information or ask the ES to provide it. Evidence suggests that the driver and ES did not reach a clear understanding about the movement to be made.

The train set off into the work site and accelerated to 20 mph (32 km/h) with the train ahead standing 0.8 miles (1.3 km) away. As the train rounded a curve, still travelling at 20 mph (32 km/h), the driver saw the rear of the stationary train about 100 metres away and made an emergency brake application. The train was unable to stop in this distance and collided with the stationary train at about 10 mph (16 km/h). The moving train comprised ten wagons loaded with stone and another locomotive at its

rear, giving a total train weight of 1118 tonnes. The braking performance of a train of this type and weight, meant its stopping distance at this speed was likely to be between 200 to 300 metres.

If an ES (or SWL) does not brief the driver about a maximum speed to travel at in the work site, the Rule Book requires a driver to travel at a speed of no greater than 5 mph (8 km/h) (reference GE/RT8000 module T3, section 9.6). The driver of the freight train travelled faster than this speed. The Rule Book also requires a driver to proceed 'at caution' for any movement in a work site (reference GE/RT8000 module T3, section 9.6). The Rule Book defines 'at caution' as proceeding 'at a speed which takes account of conditions (such as the distance you can see to be clear), that will allow you to stop the train short of any train, vehicle or other obstruction, or the end of your movement authority' (reference GE/RT8000 module TW1, section 25). The driver did not proceed at caution into the curve on the approach to the old Ivybridge station.

The RAIB is investigating a similar accident at [Logan](#). This investigation is considering the kinds of issue associated with drivers proceeding at caution in possessions and work sites as seen at Ivybridge. The rail industry has also been taking action to remind drivers on how to proceed at caution. The RSSB has issued guidance on this issue to the rail industry via its Opsweb website.

4. Previous similar occurrences

Since 2006 RAIB has investigated collisions within work sites at [Badminton](#), [Leigh-on-Sea](#), [Arley](#) and [Kitchen Hill](#), and is currently investigating a collision within a work site that happened at [Logan](#). In all of these accidents, a train or vehicle was travelling too fast to be able to stop when its driver saw a stationary train or vehicle ahead.