

Near miss with track workers near Kirtlebridge, Dumfries and Galloway, 14 November 2019

Important safety messages

This incident demonstrates the importance of:

- staff reaching a clear understanding when communicating messages affecting the safety of people on the track
- ensuring that safety critical communication protocols are concise and easy to apply by those working on site
- the need for LOWS lookouts to treat the system as live following a successful test, and to always start giving warnings of trains unless the LOWS controller has specifically instructed them not to

Summary of the incident

At around 09:00 hrs on Thursday 14 November, three members of Network Rail staff had to jump clear of a train travelling at a speed of 125 mph (200 km/h) near Kirtlebridge, Dumfries and Galloway. The staff had just begun a track inspection under the protection of the radio-based Lookout Operated Warning System (LOWS) when the train approached unexpectedly round a bend. The train driver sounded the horn and applied the emergency brake. The staff jumped clear less than one second before the train passed. There were no injuries.

The LOWS equipment they were using at the site of work comprised a receiver unit equipped with flashing lights and a siren intended to warn staff working nearby when a train is approaching. The lights and siren start operating when switches are operated on one or more transmitter units connected to the receiver unit by a secure radio link. A person designated as the LOWS controller remains with the receiver unit while each transmitter unit is operated by a LOWS lookout. The controller and each lookout carry a dedicated mobile phone, provided with the LOWS equipment, to communicate while using the equipment. LOWS is regularly used on the West Coast Main Line in southern Scotland because the combination of high train speeds and curved track often precludes use of a warning system relying on lookouts using flags.

The incident occurred at Merkland, 3.2 km south of Kirtlebridge emergency crossovers, while staff were inspecting the track. The site team comprised nine members of Network Rail staff including a Controller of Site Safety (COSS), LOWS controller and two LOWS lookouts. The system of work required one of the LOWS lookouts to be positioned 1.8 km north of the site of work and the other to be positioned 2.5 km south of the site. The LOWS team were all experienced users of this equipment and had worked in this area on many previous occasions.

At the start of the shift, members of the team received a pre-work safety briefing from the COSS before driving to the site of work where the weather was frosty and clear with bright sunlight. On arrival, the LOWS team unpacked their equipment and the two LOWS lookouts then travelled to their appointed locations while the site team prepared to start work. Subsequent events are tabulated below using times taken from mobile phone records, witness statements, CCTV and the on-train data recorder.

- 08:57 hrs Lookout (south) informed the LOWS controller, using a mobile phone, that he was ready and in position. The controller responded by asking him to switch on the transmitter unit and then to wait until the controller had contacted lookout (north).
- 08:58 hrs Lookout (north) informed the LOWS controller, again using a mobile phone, that he was ready and in position. The controller instructed him to switch on the transmitter unit and then test the LOWS system by operating the transmitter unit. This action correctly triggered the warning lights and siren at the site of work. When the phone call ended the controller was expecting the lookout to send a warning when a train was approaching, but lookout (north) believed this was not yet required.
- 08.59 hrs LOWS controller phoned lookout (south), they conducted a successful test of the system and the controller then said, 'fine that's us' or 'right that's you up and running' (evidence varies concerning words spoken). Call concluded at 09:00:03 hrs.
- 09:00:10 hrs Train 9M51 passes the location of lookout (north), the LOWS transmitter is not operated because the LOWS lookout did not believe that he was required to start giving warnings for trains. Three members of inspection team step onto the track to start work at about this time.
- 09:00:38 hrs First opportunity for train driver to see inspection team, although the train driver's view may have been restricted by sun glare.
- 09:00:40 hrs Train driver sounds horn.
- 09:00:41.5 hrs Inspection team clear of path of train.
- 09:00:42 hrs Train passes inspection team.

The inspection work was cancelled immediately after the incident and staff left the site.



Forward-facing CCTV image from front of train approximately one second before it passed the inspection team (Virgin Trains). This image is affected by bright sunlight and has been enhanced to improve its clarity.

The training covering use of LOWS equipment instructed LOWS Controllers to ask the lookouts to put a test warning on, confirm to the lookout that the test warning had been received and then to instruct them to start giving warnings with immediate effect by saying “you are now looking out”. The staff involved in the incident had received this training in accordance with Network Rail requirements for initial and refresher training.

There is conflicting evidence about the words spoken during the conversation at 08:58 hrs during which lookout (north) and the controller reached a different understanding about whether the lookout duties had already commenced. The controller stated he said “right, that’s you up and running”. The lookout states the controller told him he was going to phone the other lookout and thought the controller was then going to phone him back.

Witness evidence shows that members of the LOWS team were following their normal practice of using informal language, rather than the formal communication protocol mandated by Network Rail. It is certain that their conversation did not result in a clear understanding between the staff involved and it is likely that use of the formal words “you are now looking out” would have resulted in lookout (north) appreciating that the LOWS controller was expecting him to be sending warnings when the incident occurred.

The lookout also stated that he would normally start sending warnings after the system was tested and without a further phone conversation. This is the process described in the LOWS training but, on this occasion, he left the conversation thinking he would be called back.

LOWS operating procedures

The use of LOWS is described in Network Rail standard NR/L3/MTC/SE0207, 'Use of Lookout Operated Warning System (LOWS)'. This requires staff to comply with a separate document, SMF/SE/0338 'LOWS set-up voice communications protocol'. This protocol gives precise wordings for about 20 phrases (including 5 to be repeated back) in two phone conversations between the operator and each lookout. RAIB, and Network Rail staff speaking with RAIB since the Kirtlebridge incident, consider this protocol is complicated, and consequently difficult to use. This was not a factor in the Kirtlebridge incident because the material used for training the LOWS staff had been updated when upgraded equipment was introduced, and the version used for training the staff involved in the incident describes a set-up communication protocol which is simpler to apply than that in protocol 0338.

RAIB also observes that the current versions of standard NR/L3/MTC/SE0207 and protocol SMF/SE/0338 have not been reviewed or updated since the first issue dated 2009, despite the introduction of upgraded equipment in 2010 and 2018.

The presence of protocol 0338 in the current suite of Network Rail documents, and the absence of a review process for standard NR/L3/MTC/SE0207, have the potential to cause unnecessary risk to trackworker safety. Network Rail's national Workforce Safety team has stated their intention to address this issue and are considering the most efficient way to ensure that staff use the simpler protocol.