rightrack

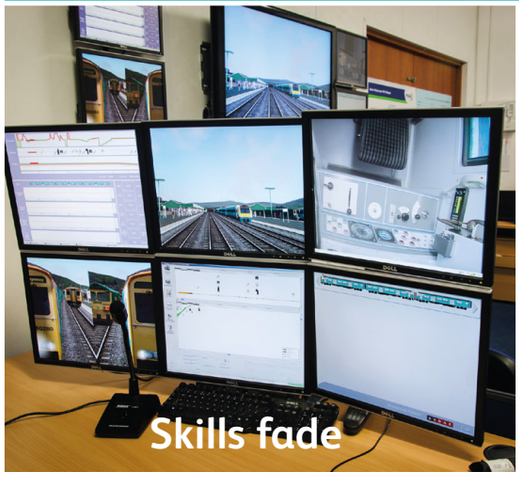
Issue 21 **Autumn 2017**

Our regular features

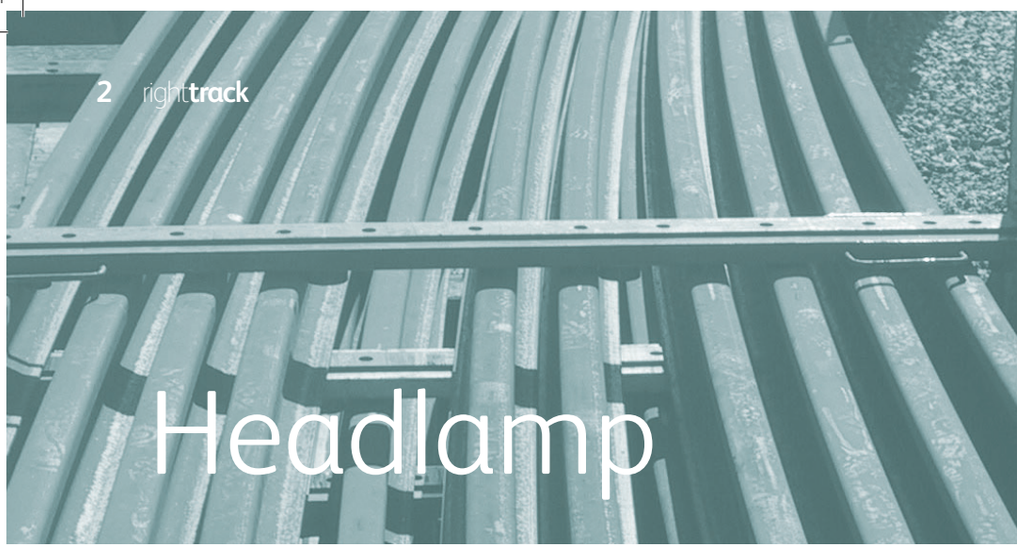
RAIB Report: Near miss at Ascot
The Lowdown
AJ Yates, RMT Health and Safety Rep
SPADtalk
Newswire

Also in this edition...

Who you gonna call?
Skills fade
RuleBook app



RSSB



Headlamp

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Hello, and welcome to issue 21 of Right Track!

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In this issue, we're finding out about the changes to the night time quiet periods coming into effect in December 2017, and we've got an update on the new Rule Book app.

We've also got a handy reminder of the people you can call when you're faced with a health and safety issue. And speaking of health and safety, our Lowdown interview this time is with AJ Yates, RMT health and safety rep at Network Rail.

In our regular features, we look at how signal sighting can affect the likelihood of having a SPAD; and get an update on RAIB's investigation into an incident at Ascot.

As ever, we would love to have your feedback on any of the articles in this issue. If you have any comments, please email us at **righttrack@rssb.co.uk**

Right Track can be downloaded from Opsweb: www.opsweb.co.uk

Right Track is produced by RSSB through cross-industry co-operation. It is designed for the people on the operational front line on the national mainline railway, yards, depots and sidings, and London Underground. Their companies are represented on various cross-industry groups, including the System Safety Risk Group, managed through RSSB, and Right Track is overseen by a cross-industry editorial group.

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Skills Fade -

What is it and how can we manage it?

Picture the scene: you're back in your dusty school classroom in a maths lesson. The teacher is explaining yet another algebraic equation. You grip your pen tightly in frustration. How can this be so difficult? You've solved it - you can do algebra *(fist pump)!*

Fast forward to today. How much can you remember? If you're anything like me, you've forgotten everything. You have experienced what is known as skills fade. Skills fade is the decline in your ability to carry out a task when you've not done that task for a while. Some skills last longer than others: for example, people don't usually forget how to ride a bike; hence the saying 'it's like riding a bike'. But other skills fade much more quickly, as our algebra example shows.

Skills fade is a normal process when you don't often need to use a skill. But, working in a safety critical industry, it's essential that we understand how and why our skills fade over time. Our skills are needed to keep up high levels of safety for ourselves, our colleagues, and members of the public. It's important that we understand the situations where skills fade is possible and handle these properly.

We've seen instances where skills fade has contributed to operational incidents. For example, an investigation into an incident involving signaller error found that the signaller had been on sick leave for a year and had returned to work just 1 month prior to the incident. It's understandable that their skills would have faded in that time. The wider question, then, is whether measures could have been put in place by the company to prevent this incident? If the signaller had known about skills fade, could they have done anything to help maintain their own skills?

Let's take lineside skills as an example. Signal post telephones have been an inherent part of railway furniture for many years (see box), but if you are a train driver when was the last time you were required to go onto the lineside to use one? It is likely that most would answer this

question 'not for a while'. Following the introduction of GSM-R (Global Systems for Mobile Communication – Railways), signal post telephones are used less and less. And, much more importantly this means that drivers are spending less time on the lineside.

So, what are the safety issues? Of course, reducing the amount of time a driver spends on the lineside is a good thing as it is a high-risk area. The only time drivers now use signal post telephones is when they're experiencing a GSM-R failure. But as this is done far less frequently than it was done before, it is likely the driver is less familiar with the lineside and has experienced skills fade.

Skills fade is influenced by many factors, including:

- The organisation,
- The task,
- Training and assessment,
- The individual.

When considering the task, "thinking" tasks, are more prone to higher levels of skills fade than "physical" tasks. Although thinking tasks can be rehearsed more easily, physical tasks produce muscle memory, which can help to reinforce the task skills. The task of remembering rules on limited clearance on the lineside is more at risk from skills fade than the physical task of raising your arm when a driver sounds their horn.

Signal post telephones became widespread around 1934. They were placed at automatic signals so that drivers could contact the signaller ahead, and establish whether they should pass the signal at red with authority, or to wait for the signal to clear.

Before then, a driver whose train had been stopped at an automatic signal had been allowed to pass it at danger on his own authority after waiting a specified period, known as the 'Stop and Proceed' rule.

After two collisions in 1933, at Three Bridges and Alne, this was reviewed. The review led to signal post telephones being installed at automatic signals; the driver was only allowed to proceed on his own authority if the telephone had failed and it was not possible to contact the signalman from an alternative telephone.

We're also more likely to experience skills fade for tasks which we complete differently each time we do them as compared to tasks that are the same under all conditions. For a driver trained on several locos, they'll need to set up the cab and deal with faults differently for each one. If they haven't driven one particular loco for a while and are then scheduled to operate one, they may notice setting up the cab and dealing with any issues takes a bit longer, and requires more effort, than the cabs they are familiar with. This is the impact of skills fade.

Thinking tasks include:

- Rules on limited clearance
- Safety critical communications

Physical tasks include:

- Raising arm when driver sounds horn
- Walking on the lineside

Newswire

2 August 2017, US: Dangerous goods derailment leads to evacuation in Pennsylvania

At around 04:54 (local time), a freight train derailed in Hyndman, Pennsylvania. At least one wagon contained liquefied petroleum gas. Another, which contained molten sulphur, leaked and caught fire. There were no reported injuries, but the blaze extended to a local garage, prompting the emergency services to evacuate a thousand residents within a one-mile radius.

5 August 2017, US: Freight derailment in South Carolina caused 'by bulldozer near the line'

Early in the day, a freight train struck a bulldozer parked near the line at Lugoff, South Carolina. The subsequent derailment caused no injury, but it did damage the infrastructure and a nearby warehouse. Diesel fuel spilled from one of the locomotives, although clean-up crews managed to contain it.

11 August 2017, Egypt: Passenger train collision near Alexandria kills at least 41

At 14:15 local time, a passenger train from Port Said collided with the rear of another from Cairo near Khorshid station. At least 41 people were killed and 179 injured. Reports said one of the trains had been brought to a stand after a malfunction.

So what should be done?

Skills fade is most effectively addressed when both the company and the individual play their part.

The organisation should have arrangements to deal with skills fade. This should include refresher training and performance feedback as and when necessary. It's important to make sure training methods are effective and learning is reinforced, especially for tasks that are not performed frequently. Managers should also work to develop a culture where staff are able to think about their own tasks, and feel comfortable reporting those they feel are subject to skills fade.

There are also things that we can do for ourselves. In particular, we should always lookout for situations where our skills might need refreshing, especially our safety-critical skills, and talk about them with our supervisors when we do notice them. Some of us prepare checklists, and others make reference notes, to help us remember technical details or procedures in unfamiliar situations. These are good techniques for some situations, and can also help to highlight a task that is in danger of skills fade. Do what works for you, to keep your skills from slipping.

It also helps to keep an eye out for new technologies, as some of these change the way we perform some of our tasks. To go back to our previous example, the introduction of GSM-R has meant that drivers are far less likely to need signal post telephones; and so are more likely to experience lineside skills fade. So what new technology has come into your role, and how could it put you at risk of skills fade?

Everyone experiences skills fade; it is a normal process that affects us all. With developments in technology changing the nature of certain tasks, it is vital that both companies and individuals play their part in reducing skills fade on the railway. Make sure it's only your algebra that fades away!

More information

RSSB produced an industry good practice guide on the topic in 2011. This is available on the SPARK website. Go to **www.SPARKrail.org** and search for T717.

RED 47: Technology special looks at some of the new and upcoming technologies on the railway. To see how they might affect you, go to **https://www.rssb.co.uk/opsweb/red-programmes**

19 August 2017, India: Derailment near Khatauli kills 23

The Kalinga Utkal Express derailed near Khatauli, Uttar Pradesh, killing 23 people and injuring 74 more. It was reported that one carriage struck a house at the side of the line. It was later reported that 11 gangmen, one ironsmith and a junior engineer had been dismissed from their posts in light of the incident.

22 August 2017, US: Rear-end collision in Philadelphia injures 33

A passenger train ran into the rear of a stationary ECS formation at 69th Street Terminal, Upper Darby, Philadelphia. 33 people were injured, four of them seriously. An investigation has been launched.

23 August 2017, India: Kaifiyat Express derails near Pata, injures 70+

The Kaifiyat Express derailed between Pata and Achalda, Uttar Pradesh, having struck a dumper truck on the line. At least 74 people were injured, four of them seriously. It was reported that the dumper was a rail-owned vehicle, which was carrying sand for a parallel freight-only line. However, railway officials in Delhi said the dumper was not connected to the project.

Rule Book app - what's in store?

The new Rule Book app is available to RSSB member organisations, allowing operational staff across the railway to try it free of charge until April 2018.

The new Rule Book app is already proving popular amongst the staff who have been trying it out.

The initial trials at South West Trains and South Western Railway were a success (see Right Track 19). The app has now been developed for Android as well as iOS (Apple) devices, which means you can access it on most mobiles, tablets and laptops.

Staff from four passenger train operators, seven freight operators and Network Rail have been trying out the app, and the feedback so far has been very positive.

Currently, the app is exclusively available to RSSB members under licence. This means that companies need to formally 'sign up' before their staff can access the app, but this is very easy, and can be done in just a couple of emails with the RSSB offices. And until April 2018, the app is free to RSSB members to adopt and try out. The RSSB website has more detail about how to get on board and terms and conditions (see box).

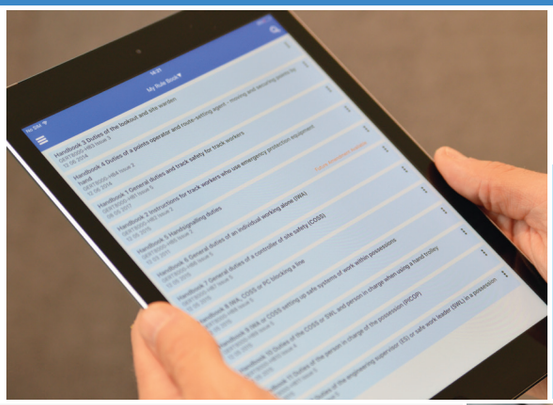
After April 2018, the idea is that anyone will be able to buy the app, whether they are RSSB members or not. However, RSSB members will be allowed to buy the app in bulk, so that it can be downloaded onto company devices used by their staff – which means you don't have to pay for it out of your own pocket.

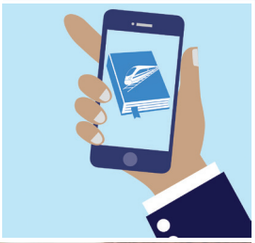
But with paper copies and web versions available anyway, why would people bother to go digital? Well, with an increasing number of rail staff given mobile devices and tablets, it makes sense to use the technology they're already using. And the trials so far have shown that the app's user-friendly navigation, and responsive design, mean that it is easier to use than the web and paper copies. It also allows you to search across documents, so you can check whether there are issues related to your search that you need to be aware of. And you don't need to be online to check the rules, as the content can be accessed even when offline. The app updates itself automatically, and tells you so through a notification on the screen which you can acknowledge.

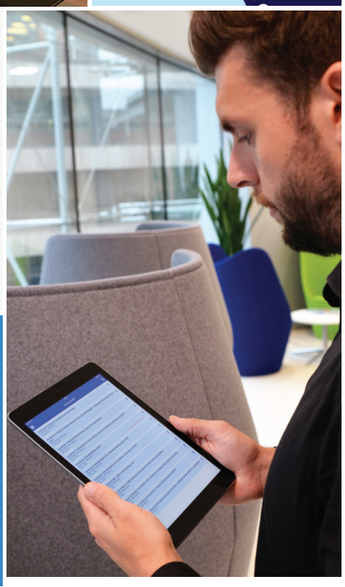
So, if you're a driver, guard, dispatcher, signaller or indeed anyone who uses the Rule Book in your company and you'd like to give the app a try, get in touch with your line manager, or have a look at the RSSB website.

The new app:

- **Improves usability**
- **Uses responsive design**
- **Suits adult learning styles**
- **Allows cross-document search**
- **Automatically updates itself**
- **Is available on Android or IOS**







To find out more about the Rule Book app, go to...

www.rssb.co.uk/standards-and-the-rail-industry/standards-explained/national-operations-publications/developing-the-rule-book-app

Keeping up with the WONs

Safety has been a key word on the railway for over a century. To allow us to keep ourselves, our colleagues, our passengers and everyone, it gets drilled to us in the weeks or even months of training we get before we're allowed on the track.

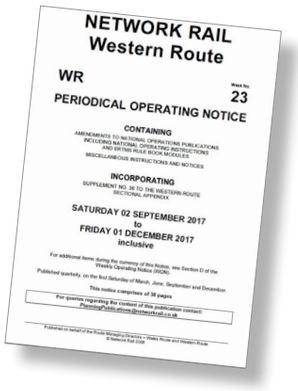
Once we're on the track, there are a lot of documents that help us remember the rules, or look them up when we're faced with a situation we're not sure of. So the Rule Book, for example, is a must for anyone who has an operational role on the railway.

But there are also documents that keep us informed of changes to the rules. Because the railway does change, with new devices and technologies, and new safety measures in place. We make use of all the tools that are available to us, so that we can stay safe. When there is a change that affects the whole industry, it needs to be agreed by all of industry. If we're all on the same page, there will be fewer confusions; fewer confusions will lead to fewer incidents. These changes are decided by cross-industry Standards Committees.

When a new issue of the Rule Book is published, it will include all the changes agreed by the Standards Committees since the last issue. But what about between Rule Book issues? The railway doesn't stop getting safer just because the Rule Book isn't being printed. That's one of the reasons the industry creates Periodical Operating Notices, or PONs. PONs contain amendments to National Operating Publications, including changes to the Rule Book Hand Book and 'White' and 'Pink' pages of the Working Manuals. The rules in your PON will be included in the next issue of the Rule Book. But as Rule Books only get printed once or twice a year, the PONs allow us to keep on top of the changes in between Rule Book editions.

If a change to the Rule Book, or other National Operating Publications is so urgent that it cannot even wait until the next issue of the PON, then it might be published in the Weekly Operating Notice – the WON. As well as amendments to operating publications, the WON also contains details of temporary speed restrictions, engineering works and signalling and permanent way alterations.

For the safety of ourselves and our colleagues, it's critical that we make ourselves familiar with our WONs and PONs.



NETWORK RAIL
Western Route

WR

Week No.
23

PERIODICAL OPERATING NOTICE

CONTAINING

AMENDMENTS TO SECTIONAL OPERATIONS PUBLICATIONS
INCLUDING NATIONAL OPERATING INSTRUCTIONS
AND ENTIRE RULE BOOK MODULES
MISCELLANEOUS INSTRUCTIONS AND NOTICES

INCORPORATING
SUPPLEMENT NO. 38 TO THE WESTERN ROUTE
SECTIONAL APPENDIX

SATURDAY 02 SEPTEMBER 2017
to
FRIDAY 01 DECEMBER 2017
inclusive

For additional items during the currency of this Notice, see Section D of the
Weekly Operating Notice (WON).

Published quarterly, on the first Saturday of March, June, September and December.

This notice comprises of 38 pages

For queries regarding the content of this publication contact:
Paperrule@railtrack.co.uk

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Further information

To find out more about the Rule Book and industry standards, go to... **www.rssb.co.uk/railway-group-standards**

To find out more about WONs and PONs, check your company's intranet.

To find out more about Standards Committees, go to **www.rssb.co.uk/groups-and-committees**

Who you gonna call?

The railway is the safest form of land transport in the UK. But it is still a safety critical environment, and there are plenty of risks about - from infrastructure issues to passenger behaviour. So how can we become even safer?

For a lot of emergency situations, the Rule Book tells us exactly what to do. For example, if I'm a driver and I see an obstruction, such as some fallen masonry on the opposite track, I need to call the signaller to stop the other trains. If I'm working on a busy platform and someone falls onto the track, I need to call the signaller so they can stop the trains in the area and get the current switched off if necessary. The need is clear, the instructions are clear, the outcome - avoiding injuries and potential fatalities - is clear.

But what if it's not an emergency? What if it's lighting on a footpath that's failed, so you and your colleagues can't see the way to your worksite so clearly? What if there's a culture in your team of working until the task is finished, even if that means regularly exceeding the hours you're meant to work? The risk there is much harder to pinpoint: there won't necessarily be a train collision, or an electrocuted passenger, as there is with our emergency examples above. But there is still risk associated with working in unsafe locations and cultures; and there are systems in place to raise them.

Step 1: Signaller

Any issues that affect the safety of trains, such as damage to the infrastructure, should be reported immediately to the signaller.

Step 2: Line manager

You can always to approach your line manager. They should know how to deal with your concern: either by fixing it themselves, or by bringing it to the attention of people who can. You can have just an informal chat, or make a more formal complaint. That depends on the policies in place in your individual company, and on what you feel comfortable doing.

Of course, for some of us, sometimes our issue is our line manager. Or our line manager doesn't take our issue seriously. If that's the case, there are still ways to get help.

Close Call

Sometimes issues can't wait and need to be sorted out immediately. So if you see someone get almost injured using a tool, but a tiny change could have resulted in serious consequences, you might call Close Call. The Close Call team will take calls about any health and safety issues.

Close Call, which was launched in 2011, can be used by anybody who works on the operational railway. A lot of staff across the railway use it, with over 140,000 Close Calls reported in 2015/16.

Hotline: 01908 723 500

Close Call App *(Network Rail employees only)*

CIRAS

If you're concerned about speaking up about a health and safety issue for any reason, or have already tried without success and feel something needs to be done, CIRAS could help.

CIRAS is the industry's confidential incident reporting and analysis system. It's independent of any railway organisation; and its staff will listen to your concern, write a report on your behalf, send it to the people who can facilitate a resolution to your problem, and then let you know when they get a response. So they act as a middle man between the person who wants to report the issue, and the people who can fix the issue - without ever sharing your identity.

They started off in 1996 as a trial, and then expanded to include all railway companies following the

Free hotline: 0800 4 101 101
Textline: 07507 285 887
Post: Freepost **CIRAS**
Website: www.ciras.org.uk

recommendations of the Ladbroke Grove report. They have over 20 years' experience, in which time they've never had a breach of confidentiality.

Your local Health & Safety rep

The trade unions – RMT, TSSA, ASLEF, and others – ensure that there are trained Health & Safety reps in your workplace. They will listen to any concern you have on health, safety and wellbeing, and raise it with management without mentioning names.

Names and contact details are provided on the health and safety at work poster in your workplace.

SMIS

Unfortunately, even with the best will (and best practice) in the world, sometimes accidents and incidents do happen. When they do, RSSB member organisations enter the details of the incident in the industry-wide Safety Management Intelligence System (SMIS). This database helps build co-operation and collaboration in health, safety and environment risk management across the board. More importantly, the data that comes from the process is used by RSSB to plot the trends that shine a light on how we're doing, what areas are improving, and where we need to focus.

RAIB report brief:

Communication breakdown leads to near miss at Ascot

At about 01:30 on Friday 7 April 2017, two track workers were almost struck by a train at Ascot station. They were working on a line they thought was blocked to trains. They were wrong. They managed to get out of the way with less than three seconds to spare. They were unhurt, but it was a close-run thing.

The track workers had been standing on the Up line at Platform 1 as the train – an ECS formation – approached at close to the maximum permitted speed of 70 mph. It appeared after the controller of site safety (COSS) had fitted insulating shrouds over the conductor rail and climbed back to the platform, and before the two track workers started work on the adjacent platform edge.

The driver saw them as he approached Ascot station. He immediately sounded the horn and applied the emergency brake, cutting the speed from 67 mph to 43 in the 9 seconds it took to reach the men. Thankfully, one of them saw the train's headlight...

The track workers were going to work on the edge of Platform 1 as part of the 'Reading 10-car project'. There was a line blockage for that purpose, planned to start after the last train had passed. The blockage was intended to provide protection to a number of work groups. A COSS was allocated to ensure safety at each one. In accordance with the Rule Book, the blockage was to be under the control of a Protection Controller (PC), who had to liaise with each COSS. RAIB concluded that the near miss occurred because the COSS wrongly believed that the PC had told him the blockage was in place.

When taking a line blockage, the PC fills in a 'Line Blockage Form' (RT3181)[1] with the signaller. This details the sections of line to be blocked, and how this will be implemented. The PC records details of each COSS to work within the blockage, including when the authority to work is given to them. PCs also record when each COSS reports back that the work is complete and the blockage is no longer needed. There's also space for each COSS to sign both the receipt and handing back of the line blockage. This signature is always required unless it has been previously planned that it will not be necessary.

1 From December 2017, this will be replaced by a new form, NR3180.

This Friday was the fifth night of work at Ascot with the same line blockage arrangements. Each night, the PC – located at Ascot station – set up the blockage with the signaller and then telephoned each COSS to tell them it was in place. He recorded this on the RT3181. Although the COSS for the platform work and a COSS for other station work were also at the station, the PC had telephoned them on the previous nights, along with all the more remote COSSs, when he'd received the blockage. He then filled in the form, without getting any COSSs to sign it to acknowledge that the blockage was in place.

Shortly before the incident, the COSS for the platform work had gone to the site office to do some paperwork. While he was there, the PC was talking on the telephone with the signaller regarding arrangements for the block. A recording of the telephone call between the PC and the signaller showed that the PC understood that the up line was still open to traffic. After he hung up, the PC and the COSS had a conversation, including a discussion of the protection arrangements and the expected time that the line blockage would end.

Newswire

11 September 2017, Switzerland: Passenger train collision on Matterhorn Gotthard line injures 30

A locomotive collided with a passenger train while attempting to run round at Andermatt. The points had not been set correctly for the move so, having drawn forward, the locomotive returned along the same line and struck its own coaches at around 20 km/h. Some 30 people were injured, none of them seriously.

15 September 2017, UK: Bomb partially detonates on District Line train at Parsons Green, 29 injured

During morning rush hour, an explosion occurred on a District Line train at Parsons Green station. It was later reported as being treated as an act of terrorism. 29 people were treated in hospitals, mostly for burns, though at least eight were discharged the same day.

15 September 2017, Belgium: Antwerp buffer stop collision injures three

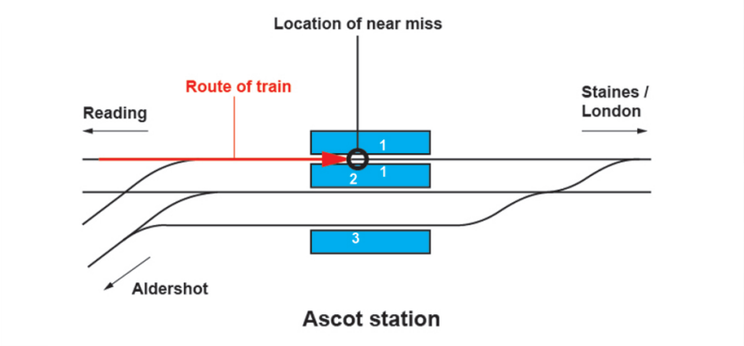
At 22:18 local time, a passenger train from Hasselt struck the buffer stops at Antwerp Central. The train overrode the stops slightly and struck a catenary mast directly in line with the track. The driver and two members of train crew were injured.

Although the details of the conversation weren't recorded, both COSS and PC recall confirming that the end time for the block was to be the same as previous night's. However, the COSS also thought the PC had told him that the line blockage was in place and that it was safe to start work. The COSS had not repeated this information back to confirm this was the case, and had not signed the RT3181 form. The COSS then proceeded to the platform and briefed his work party that the line was blocked. The COSS went on to the track to install the conductor rail shrouds, with the up line still open to trains, before allowing the two track workers on to the track to start work.

RAIB says that the incident resulted from a communication breakdown between the COSS and the PC. The former did not confirm his understanding of the information that he believed that he had obtained from the latter. This led him to believe the line was blocked when it was still open to trains. The routine practice of the PC in briefing COSSs of the line blockage by telephone, when a face-to-face briefing and confirmatory signature was practicable, was also a factor.

According to RAIB, this incident:

- Highlights the importance of good-quality safety critical comms, and of both parties confirming a common understanding of the message being conveyed.
- Demonstrates that it's preferable for COSSs to receive a face-to-face briefing from the PC before signing the RT3181 form and authorising the team to start work.



Find out more about the importance of Safety Critical Comms (SCC) in the next Right Track, which will be a SCC special.

Access the full report online by typing "RAIB Ascot" in your search engine.

12 October 2017, Sweden: Freight derails and catches fire in Ludvika

At around 02:30 (local time), a freight train carrying dangerous goods derailed, overturned and caught fire near Ludvika. There was no reported leakage. The driver was not injured and told police that the train 'bounced', adding that it was a light on board the train which had caught fire. An investigation has been launched.

21 October 2017, US: Derailment in Knoxville sees wagons collide with lineside buildings

At around 10:15 (local time), a freight train derailed in Knoxville, Tennessee, sending wagons carrying containers into lineside buildings. There were no reported injuries, and no dangerous goods were involved. All wagons had been removed from the scene within 24 hours, but those businesses whose buildings were damaged were left with major repair works on their hands.

26 October, Finland: Four killed as train collides with military vehicle on level crossing in Raseborg

Four people were killed and 11 required hospital treatment after a passenger train struck a military vehicle on a level crossing in Raseborg in southern Finland. Three of the fatalities occurred in the military vehicle; one involved a rail passenger. In neighbouring Sweden, a passenger train struck an armoured car near Trosa, south of Stockholm, on 26 September.

The Lo

AJ Yates, Lead RMT Health and Safe

Health and Safety reps can play a vital role in keeping our staff safe on the railways. So what does their job entail? RSSB's Martha Parkhurst went to meet Adrian "AJ" Yates to find out.

When I call AJ to arrange the interview, I ask to come to his place of work. Problem is, AJ's work takes him all over the place, so he has no fixed place of work. In the end, we agree to meet for a coffee at St Pancras instead.

AJ is one of those people who has railways in his blood. He is fourth generation railway, on both his mum and dad's side. It seemed natural that he'd join the same industry in 1981. He worked under the old British Rail when the network was still nationalised; and has worked for Southeastern and Network Rail since privatisation. So his railway credentials definitely stack up.

His trade union credentials do, too. He has been a rep for 32 years, both as a staff rep (dealing with industrial relations) and a health and safety rep (fighting for improved health and safety, as you might well be able to guess from the name), and has been a lead rep for six and a half years. Elections are coming up soon though; at which point he either gets re-elected, or has to go back to his signalling job.

But what makes a lead rep?

Well, your local rep fits their union work around their day job. AJ? Being a rep is his day job. Sure, he does the odd signalling shift to maintain his competency; but it's keeping the people on his patch safe that he gets paid for. If you're one of the 8000 Network Rail staff in Kent, Sussex or Wessex, or work in a ROC anywhere on the network, he cares about your safety. He's the one the local reps turn to when they've got questions, or need to raise issues that aren't being solved locally.

wdown

afety Rep, Network Rail

So what kind of issues does a health and safety rep get these days? And who's affected?

With a staff rep, you have to be a member of the union to raise a concern. But with a health and safety rep, because a non-member's safety concern could impact the wellbeing of everyone – including the union members reps look after – anyone can go to them with a concern. "Safety doesn't wear a union badge", as he put it.

"It's a lot of welfare issues. Workload and bullying, leading to stress and stress-related illnesses, for example." When that's the issue, very often the person does not feel comfortable approaching their line manager, as sometimes they feel it could actually make things worse.

It's important that issues like this are recognised, so that risks can be reduced – not just for the person who raises the concern, but for everyone who works in the same environment and could also potentially be affected by it.

And how does AJ solve the issues people bring to him?

He and the other lead health and safety reps (three from TSSA, six from RMT) have regular meetings with some of Network Rail's top brass, and can raise their issues there. "One of them calls us 'the company's conscience'" he tells me proudly. And it's certainly an effective way of getting things done – so effective, in fact, that sometimes the issues he deals with have been reported by local managers who are having no joy using the normal processes.

But sometimes there's a deeper problem, something that's common across a wide number of locations rather than being localised. When that's the case, AJ gets involved in working groups which look at how to change the culture, the perception, and encourage everyone to take their safety more seriously. So he's worked on underreporting, when people don't raise an incident that has happened; on investigations, to make sure the focus is on the root cause rather than the easy answer; and challenging unsafe attitudes.

But does that lead to any improvements for us?

AJ reels of a list of changes he's helped implement, from improving conditions in ROCs which struggled with poor heating and lighting, to raising awareness about mental health issues and unequal treatment. "Everything and anything," he says. "If it can happen to a person, it's probably come across my desk."

One of AJ's successes has been the fair culture work. This is work to take away the fear of reporting, so that staff and managers feel more able to report issues and concerns. It's effectively working on removing the blame culture of 'he did it' or 'she did it', to a problem culture of 'this went wrong, we need to find out why before it happens again'. There's still a lot of work to do, but things are slowly improving.

So just what makes a signaller become a rep?

"I just wanted to put something back. And I want to stop things going wrong."

Work should be as good as possible. If issues are not fixed, there'll be more incidents, more injuries, potentially more deaths. And that's worth preventing.

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It's really helpful for level crossing users to hear oncoming trains, so they know it's not safe to start crossing… or that there's no time to dawdle if they're already halfway across. That's why many unprotected crossings have whistle boards, placed just the right distance away to warn users (up to 400m away). This means drivers know to sound their horn when there's a level crossing coming up – especially when it's just beyond a bend, or the other side of a bridge for example.

But we also know that it's really important to get a good night's sleep. It helps with physical and mental health issues, and it allows people to be more productive in their day to day lives – whatever they do.

So how do we balance our need to warn people of an oncoming train with the need of our railway neighbours to get decent sleep?

Well, we have the night time quiet period: Rule Book module TW1 has stated for some years that horns do not need to be sounded at whistle boards between 2300 and 0700, except in an emergency or when anyone is seen to be on or near the line. But statistics show that people in our society have very different lifestyles and sleep patterns, which mean they use level crossings at times when a lot of us are in bed. Shift workers come home late, dog walkers get out early. They also need protection.
As a result, the times during which the horn must not be sounded were changed in March 2017. The Rule Book has been amended to state: You must only sound the horn when passing a whistle board between 0600 and 2359, except in an emergency or when anyone is on or near the line.

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ne distance

When do user-worked and footpath level crossings get whistle boards?

Like everything else on the railway, level crossings are risk-assessed (by the All Level Crossing Risk Model, or ALCRM). It follows these steps:

1. How long would it take the average user to cross? If there are vulnerable users, such as people with mobility issues or pushchairs, this time may be extended.
2. What is the sighting distance from the level crossing on both the up and down lines? Are there any structures, curves in the track or vegetation that need to be considered?
3. If a train were to approach at the maximum speed permitted on the line from the sighting distance, would that take more or less time than it takes the user to cross?

4a. If the train will reach the crossing after the user has reached the other side, then no further measures need to be taken.

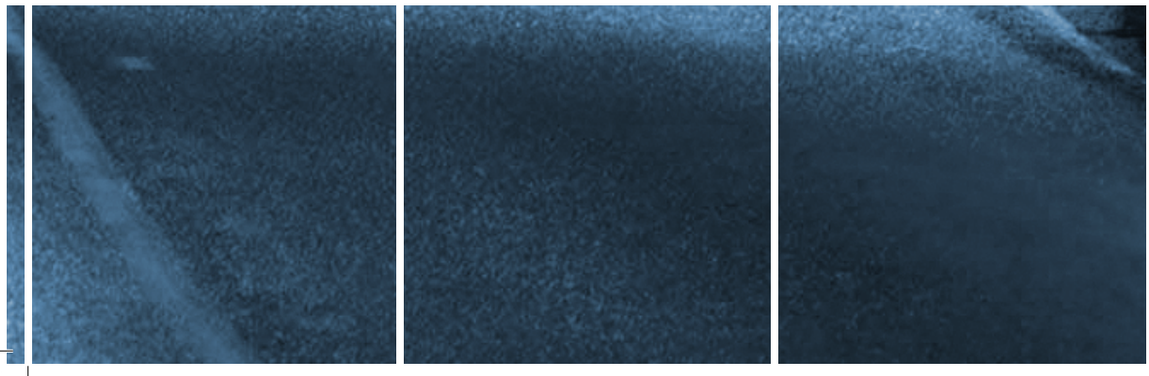
4b. If the train will reach the crossing before the user can reach the other side, then the user is not safe and further measures need to be taken.

5a. Add a whistle board

5b. Impose a speed restriction

5c. Put miniature red/green lights at the crossing.

Level crossings with active warning systems such as warning lights and barriers do not normally require whistle boards.



In brief:

The night time quiet period has changed. You now need to sound your horn from 0600 to 2359.

More information can be found on the Rule Book module TW1, section 45.3

SPADtalk

This is the sixth instalment in our series on the human factors issues which can lead to SPADs (see SPADtalk, issue 16). This time, we're shining the spotlight on signal design and how it can help reduce SPADs.

Very often, a driver coming back to the cab after a bank holiday will see that the disruption of engineering works has given way to new signals on the route, which they can finally see in real life rather than on a yellow notice. Once they're installed, these new signals will be there for a very long time. They'll work with signals which have been on the route for decades. A signal is not just for Christmas or Easter – it is for life. Or at least until the European Rail Traffic Management System (ERTMS) is implemented across the network.

Because of their importance to the network and their long life, signal design is incredibly important. Drivers will see them millions of times over decades, and use them to safely control their trains over the network. So the industry is constantly looking for ways to improve signal design. New signalling schemes have better quality LED lights and more protection with systems like TPWS. As well as ensuring safety, they can also improve capacity on our network.

One of the most critical considerations during design is to make sure the signals 'work' for their main users – the drivers. So, one of the aims during any signalling upgrade, is to improve the signal design, and so reduce the possibility of SPADs and mitigate their consequences.

So how is this done?

The company in charge of the signals (Network Rail) wants to make sure drivers' views are considered during the design process. So they ask train companies for input. However, there are always limits to what can be done. New signals need to fit with the railway physically and technologically. This means that new and old designs continue to present challenges.

Drivers work with these designs every day, and can get used to the risks. For example, groups of signals on gantries are effective and useful for driver route knowledge. However, they create an immediate risk: there is a possibility that a driver will misread one signal for another, particularly on a curve. If a signal is all on its own, it can't be confused for anything else; signals on gantries introduce that risk. Human performance data show that this opportunity for confusion increases the likelihood of human error.

Driver training and route risk assessment identify risks like this, and drivers use error management strategies such as counting across to reduce the risk. But with all these systems in place, where does the responsibility lie when there's a SPAD from misreading a gantry signal? Is it the signal design engineer or the driver, or a bit of both? Or is it the gantry signal itself, in place for decades, which has created the opportunity for confusion? Everyone needs to take responsibility for their errors, but at the same time we need to understand how the signal design plays its part in SPADs.

Signalling layouts will always have risks; even when they are well-designed there may be unexpected challenges or risks for drivers. Experienced drivers carry their own route risk assessment around in their head: the signals they know are a challenge, ones involved in incidents, or their colleagues have mentioned. Do we do enough to share those experiences, and then identify from the driver's perspective which signals need particular care or error management skills?

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