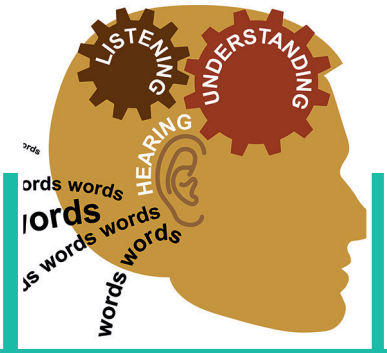
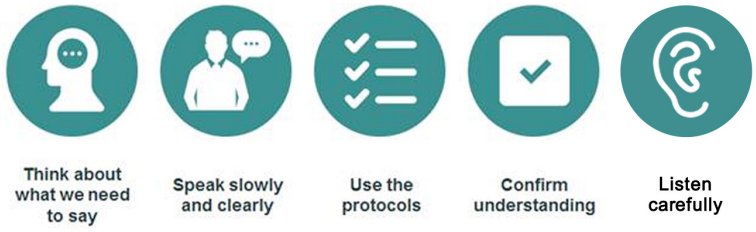
rightTrack

Issue 22 **Winter 2017**



special issue: Safety critical comms



Our regular features

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The Lowdown
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Hello, and welcome to issue 22 of Right Track!

In this special issue, we'll be focusing on safety critical communications (SCC).

It's something everyone who works on the operational railway – or any other safety critical industry – has to do on a regular basis. But what makes for good SCC? What counts as bad SCC? What's the worst that can happen when there's a misunderstanding?

Through this issue, we'll find out about the dangers of unclear SCC and what the risks are for drivers, signallers and track workers. We'll also find out what another safety critical industry is doing, to see what we can learn from SCC in aviation. Finally, we'll look at what the railway industry is doing to make sure SCC keeps improving.

If you have any comments on any of the features in this magazine, please do contact us – you can email us at **righttrack@rssb.co.uk**.

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

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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Safety Critical Communications: what's all the fuss about?

Safety Critical Communications (SCC) is a key part of tasks across the whole rail industry and is an important aspect of safe performance (see examples).

Research shows that SCC is a contributing factor in a significant number of operational incidents on the railway. As professionals on the 'front line' of the rail industry, we cannot afford to rely on luck for our message to be understood. Our operational communications must be fit for purpose.

SCC is a cross-industry activity, and everyone needs to be working to the same minimum standard. For the sake of ourselves, our colleagues and our passengers, we should help each other improve whenever possible – even across boundaries of job role or employer.

We all need to take personal responsibility for ensuring good communications. This is true whether you're a driver talking to a signaller, a contractor talking to a MOM, or just having a chat with your colleagues in the mess room about the shift ahead.

These are real incidents and, unfortunately, they are not as rare as they should be:

- "You've got one to cross," said the signaller to the member of the public, meaning that there was one more train to go before they could drive across the rural level crossing. The user immediately drove over the crossing, assuming they had one minute to do so. The train missed the user.

The signaller and the car driver were lucky

- The track team run to a position of safety as the train enters what they thought to be a safe work site. The COSS and signaller had failed to confirm the line blockage details using a 'repeat-back' and a misunderstanding had occurred.

The COSS and his work group were lucky

- A driver of a failed train structures his communication badly and deluges a signaller with information, mistakenly believing he has obtained permission for a track-side inspection in the process. A near miss occurs as he ventures track side.

The driver was lucky

Is it simple? Is it clear?

A vast number of safety critical tasks and activities are carried out on the British railway network every day, and nearly all involve communication. The Rule Book discusses over 350 separate scenarios when a driver or a signaller alone are required to contact each other. Then there are conversations with guards, station staff, control, electrical control rooms, track workers, MOMs… The list involves almost everyone who works on the railway.

The Rule Book gives instruction on:

- the format for the beginning a verbal communication
- standard phrases
- use of the phonetic alphabet
- lead responsibility
- closing verbal communication.

More information can be found in Module G1, "General safety responsibilities and personal track safety for non-track workers", section 5.

The sheer number of SCC conversations, and the complexity of some of these interactions, means that there are significant potentials for communication errors, leading to safety consequences. So good verbal communication has long been identified as being crucial to the safe running of the railway network.

Different companies may have their own procedures for SCC messages within the company, but many interactions happen with people who work in other companies. So there are cross-industry procedures which make sure a signaller communicates with a COSS in a certain way, or a passenger train driver can speak to a freight driver and reach a common understanding. We have standard words and phrases to use to ensure the safe movement of trains between signallers, drivers, dispatch staff at stations and workers on the track. And there are clear lines of responsibility in terms of who leads the conversation to both manage the communication and to make sure a clear understanding is reached.

But human beings are social creatures: we thrive on friendships and relationships. And railway workers are no exception. We like to become friendly with the person we're talking to. If the signaller has already made 20 calls to the MOM this morning, it's easy to slip into "You OK mate? just want to check where we are with this," rather than following the protocol.

However, this over-familiarity can sometimes lead to SCC drifting away from their purpose, and allows non-essential information to creep in. We all like to talk, but SCC is all about keeping to the point and making sure the safety critical part of the message is transferred and understood. Communicating like this can feel rude or impersonal, but is very important, especially when key safety critical information such as signal numbers and times are being communicated.

Communication can break down for a number of reasons. Giving someone too much information all at once will result in information overload. Do you remember how it felt to go to a class where the teacher just tried to cram too much information in? Your brain probably struggled to cope; you probably couldn't remember all the points. It's the same with everybody. Giving your listener too much information too quickly means your message will be hard to process and remember, and they might miss or forget the key facts. So, before you speak, think carefully about what you want to say. What is it that they need to be aware of? What do they need to do as a result of your conversation? Be as clear as possible about each point you want to make, and arrange them into a logical sequence. One safety message at a time is more likely to be heard and understood than multiple statements all at once.

Newswire

26 September 2017, Sweden: Train driver and soldiers injured when train strikes armoured car near Trosa

A passenger train struck an armoured car near Trosa, south of Stockholm. The train driver and three military staff were injured. It was later reported that the armoured vehicle had been taking part in a major NATO exercise, involving nearly 20,000 troops.

29 September 2017, India: Stampede at Mumbai station kills 22

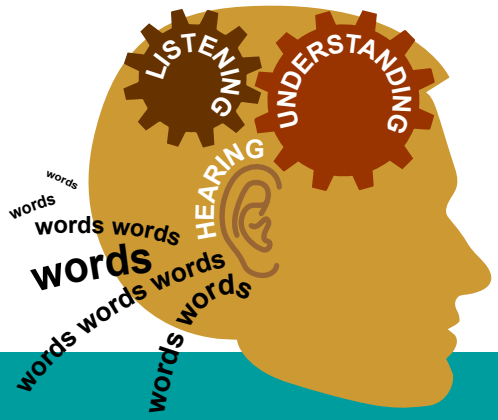
22 people were killed and 35 injured after a stampede broke out on a footbridge at Mumbai station. Reports suggest that the bridge became crowed as people were using its canopy to shelter from heavy rains. This forced some commuters to jump the railings. Others were crushed, or fell and were trampled underfoot. The local police later added that falling concrete had struck part of the bridge, leading many to panic and surge forward in the belief that the structure was collapsing.

6 October 2017, Russia: 19 killed in level crossing collision in Pokrov

A passenger train struck a bus which had broken down on a level crossing in Pokrov. Some tried to push the vehicle away, but were unable get it clear of the line before the collision, which shunted the train several hundred metres down the line. At least 19 people were killed, including a child. There were no reported injuries on board the train.

If we're not clear in what we say, the person we're talking to will find it confusing or ambiguous. What they actually hear might be quite different from what you intended to say – and the actions they take as a result could be very different from what you intended them to do. On the railway, that could lead to disastrous consequences.

Remember that listening is an important part of any conversation. Even if you're the one with the safety message, if you don't take the time to listen carefully to their response, your communication is incomplete. The Rule Book mandates us to repeat safety critical information – but it's important to make sure that repetition is right. You need to make sure that they've fully understood what the message means, and they're not just repeating back the words parrot fashion. So you can't switch off or zone out of the conversation at this point – you still need to pay attention! This can take time, and if it's the twentieth person you're giving the message to, it can be difficult – our brains crave variety, not the same thing a million times. So we have to work through those pressures, and make sure they don't affect our SCC. Take your time to ensure you come to a clear understanding before you take an action with a safety risk attached to it.



How to be clear

- Give one message at a time – don't drown your listener in information!
- Give your points in a logical order. If there's a lot of points, you may need to take some time to arrange your thoughts.
- Stick to the important stuff. If it's not relevant to the person, it'll lead to information overload, and may mean they brain drops some of the crucial points.
- Know what you want to happen as a result. What is the action you want them to take?
- Listen to what they say, and make sure it fits with what you said. If not, ask again.
- Ask questions if you are unsure, do not assume what was said or what you think you heard.

8 October 2017, India: Train driver killed after train strikes cement mixer in Punjab

During the afternoon, a train driver was killed when his train struck a cement lorry mixer, near Sukhera village. The lorry driver fled the scene. There were no reported injuries on board the train.

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 which had caught fire. An investigation has been launched.

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

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.

How to keep SCC on the Right Track.

Good SCC is critical in a highly complex, fast moving and potentially dangerous environment like track. ***Saint Miles****, Head of HSEQ at S&C North Alliance (between AmerSersa and Network Rail) tell us how they're improving SCC for the safety of their track workers.*

There are many reasons SCC can be misunderstood; and among a gang where everyone knows each other, the problems we face are very different. If there's a problem, it's someone you know and you see every day who may be at risk – not someone you speak to over the phone a couple of times a week.

Sometimes, we find that our supervisors may be so familiar with the teams that they concentrate on briefing the work and don't cover every safety point explicitly; a contingent labour force may not feel comfortable asking for further clarity; an experienced worker may slip into autopilot. The key to effective SCC is to identify every and any reason it could go wrong, and make sure lessons are learned.

Approaches to SCC can't be static: they must evolve to meet the demands of the workforce and the job. Sometimes that means taking a new perspective and doing things differently. For example, some staff need to feel 'comfortable' before they can raise safety issues; and that's not always easy when staff are only with us for as long as the job lasts. So we balance the necessary formality of our safety briefings with some informality, to help build a sense of trust. At some of our depots, there's a "wellbeing walk" in the morning where staff can turn up and discuss any subject they want. Creating that atmosphere and culture or trust means staff feel more confident reporting issues, and so we reduce risk for our colleagues – and everyone else on our patch of the railway.

Of course, things don't always go as they should. It's important that we recognise when safety problems occur or are developing, take appropriate steps to remove the risk, and learn any lessons.

There's no silver bullet for effective SCC, but we can all do our bit to reduce the risk from misunderstandings as far as possible. Companies must provide, and then continue to evolve, guidelines to improve SCC. We must provide our staff with safety information in an effective way, and empower them to tell us when they feel something is wrong, so we can stop doing it – or right, so we can carry on. As an industry we need to decide on best practice, learning from mistakes. If this can be done – and I truly believe it can – then we will gain the ultimate prize: everyone home safe every day.

How we keep our staff safe

- Site expectation briefing at the start of every shift
- Site signs: imagery reinforces the expectations briefing
- 'Take 5': supervisors and team leaders discuss safety, the working environment and tasks
- Stand down periods: duty managers address safety concerns or celebrate good practice
- Safety conversations: shared at the start of every meeting
- One-to-one group safety conversations with senior managers
- Strong emphasis on close call reporting
- Creating the environment of trust where staff feel comfortable giving safety-related feedback

Newswire

26 October 2017, Finland: Four killed as train collides with military vehicle on 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 was a rail passenger.

1 November 2017, Canada: Freight derails in Port of Vancouver, no reported injuries

At 04:40 (local time), a Canadian Pacific freight derailed inside the secured Port of Vancouver. Three loaded grain wagons were involved. There were no reported injuries.

12 November 2017, Democratic Republic of the Congo: 33 killed as dangerous goods catch fire post-collision

An oil train derailed on a gradient and fell into a ravine near Buyofwe, causing its load to catch fire. 33 people – most of whom were riding the train illegally – are reported to have been killed. Many more were injured. An investigation has been launched.

SPADtalk: Management and Supervision

In this, the fifth instalment in our series on the underlying causes of signals passed at danger, or SPADs (see SPADtalk, issue 16), we are shining the spotlight on the role of management and supervision in managing SPAD risk.

Management, safety management and supervision seem some way off from the immediate moment when a driver passes a signal at danger. However, it's been identified as one of the underlying factors for SPAD incidents. Driver management, and the wider management of risk, requires effective supervision by managers. This means looking after drivers as a whole: yes, it includes looking at competence development after incidents; but it also means doing a risk assessment for train movements during possessions, and managing fatigue.

The important of management, in the context of SPAD incidents, is underlined in the first phase of the industry's SPAD risk reduction strategy (see box).

The SPAD RRS looks past the immediate causes of SPADs, like driver distraction, to the underlying causes. If we want to reduce SPADs, it is not enough to address just the immediate causes: we need to improve the railway system as a whole by addressing the root causes too. The key priorities of the RRS highlight the important balance of responsibility between drivers and signallers, and their managers.

Most of us will have a manager all our working lives. Our managers are there to help manage our day to day work, and to support us in our professional development. They are also there to support us when things go wrong, or when we are facing challenges which impact on our work life.

Their role during and after operational incidents, and their support when we have issues which might be impacting our performance (such as illness, fatigue or stress) are vital. They are not the only people who can support us in these areas, but they are a first port of call and their attitudes can impact how we think.

To help improve this, the SPAD RRS identifies the need for managers to work on, and raise awareness of, 'Fair Culture' (see box). Fair culture is about attitudes to human performance issues, whether it be a driver involved in a SPAD, a member of maintenance staff involved in a near miss or a signaller self-reporting concerns about their own fatigue. The manager's role in creating a fair culture is key when they take responsibility for investigating and supporting staff in development plans after incidents.

Going by this definition, SPADs should often sit in the 'not punished' category, as they are usually not deliberate; instead, the focus should be on lessons learnt. A fair culture approach to incident investigation promotes more open safety discussions within organisations, by improving participation in safety processes. It encourages near miss reporting, identifying safety concerns, and conducting accurate investigations. And that, in turn, should reduce the number of SPADs on the network.

The SPAD Risk Reduction Strategy (SPAD RRS)

The industry has recently published the first phase of the SPAD RRS, which aims to reduce the risk from SPADs. It has five key priority areas:

1. The role of the driver manager and signaller manager
2. Driver and signaller self-management
3. Competency management systems
4. The use of on-board data systems
5. The impact of the infrastructure

To find out more, login to Opsweb and click on the SPADs box.

RAIB Report Brief:

Near miss at Thorney Marsh Lane level crossing, 26 November 2016

It seems like there have always been level crossings. In fact, they predate the railway as we know it. The earliest examples were where tramroads crossed the highway; Tyneside's wooden wagonways – like the Whickham (1645) and Tanfield Moor (1772) lines – even had gated crossing points.

Level crossing automation came about in part in a bid to speed up services and cut waiting times, and because – after the Second World War – it got harder and harder to recruit crossing keepers.

The next step on from automation was the user-worked crossing, or UWC. This interface– if equipped with a telephone – requires the user to call the signaller and ask if it is safe to cross. The interface at Thorney Marsh Lane, near Castle Cary, is one such. Usually, all is well: the user calls the signaller, the signaller checks the panel and either grants or denies permission to cross, providing signal protection if it's needed. Usually.

Except that, at 07:22 on Saturday 26 November, the 06:47 Westbury–Weymouth almost struck a tractor and trailer crossing the line at Thorney Marsh Lane. The tractor driver had been given permission to cross by the signaller, but as he was doing so, he saw the train approaching and accelerated his vehicle out of the way. Forward-facing CCTV pictures from the train would later show that the tractor and trailer cleared the line when the train was only around 30 metres away.

Figure 1 - Thorney Marsh Lane level crossing (photo courtesy of Network Rail)

The driver of the train saw the tractor starting to cross, sounded the horn and applied the emergency brake. The train came to a stand 450 metres past the crossing. Both drivers called the signaller to report the near miss.

The telephone at Thorney Marsh Lane crossing is connected to Westbury signal box, where it's displayed along with other crossings in the area on a 'telephone concentrator panel'.

The first call from the crossing that morning was at 05:45, when the crossing user asked the signaller if he could cross back and forth for a period of time. The signaller on duty at that time was the night shift signaller, who checked when

Newswire

14 November 2017, India: 'Akbar Express' loco runs away, driver jumps to safety near Haryana

The brakes on the steam locomotive used to haul the famous 'Akbar Express' failed during repairs, causing it to run away for about a mile near Haryana. The driver had to jump to safety before the engine derailed 70 inches away from a busy junction. It was later reported that the brake levers in the cab had jammed in the off position.

14 November 2017, Denmark: Collision with crane near Klampenborg injures passengers, brings down OLE

At 07:55 (local time), a commuter train heading for Copenhagen collided with a mobile crane near Klampenborg station. Seven passengers required hospital treatment. The driver of the crane was also injured, twisting his foot when he jumped from the machine.

15 November 2017, Germany: Two injured when train derails on 'missing track' near Elmshorn

In the morning, a passenger train derailed near Elmshorn, causing minor injuries to two members of staff. The accident occurred after the train passed a section of missing track, which had been removed during maintenance works. An investigation has been launched.

the next train was due and told the crossing user that he could use the crossing until 07:00, when he should call back.

The crossing user did as he was asked, but this time spoke to the day shift signaller. The user wanted to continue crossing the line and asked for permission to do so. The signaller told him that the next train was due to depart from Castle Cary at 07:14 and that he could continue to cross but to call back before then.

The crossing user called the signaller at 07:09 to say that he was 'all clear for now'.

The train was four minutes late leaving Castle Cary and had not passed the crossing when the user called the signaller again at 07:21. The former asked the latter if the train had been through yet. However, the signaller appeared not to hear this correctly and assumed that, because the user was calling, the train must have passed already. He'd started to check the time that the next train was due when he was interrupted by the caller asking 'can I cross or not?' The signaller continued to believe that the user had seen the train pass, but he did not confirm with the user that this was the case. He checked the time the next train was due to pass and told the crossing user that he could cross and to call back at 07:30.

Figure 2 - General view of Westbury signal box

During the call, the signaller looked at the display panel, which showed that the train was occupying the section of track which starts approximately 2.4km before the crossing and extends to a point approximately 12.8km beyond it. The display does not show the location of the train within the section. For this reason, in order to give a user permission to cross when a train is in this section, the signaller must ask them if they have already seen the train pass the crossing.

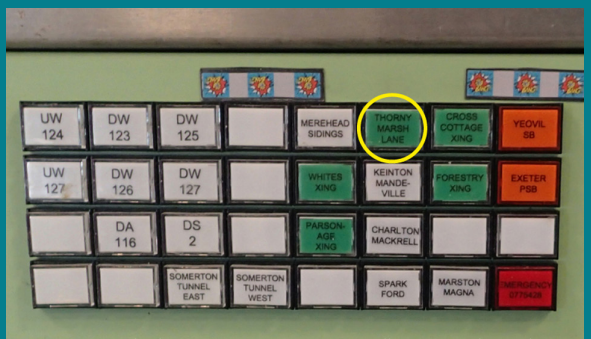


Figure 3 - Telephone concentrator on signaller's control panel. Button for Thorney Marsh Lane crossing circled.

Rule Book module G1 'General safety responsibilities and personal track safety for non-track workers' defines responsibilities for safety critical communications in section 5 'Communications procedure' (see box). This states that one person must always take lead responsibility in any conversation and that, with the exception of conversations between the signaller and the electrical controller, the signaller should take the lead in all conversations that they are involved in. However, the signaller did not lead the conversation with the crossing user when the user was asking for permission to cross.

RAIB said that this incident demonstrates the importance of:

- Signallers leading the conversation during phone calls from crossing users who may not be accustomed to safety critical communications, and
- Signallers fully considering and understanding the information available to them when deciding whether to give a crossing user permission to cross the line.

Want to find out more?

Google "RAIB Thorney Marsh Lane" for the full safety digest from the Rail Accident Investigation Branch.

The full Rule Book module can be found online. Go to www. rssb.co.uk/railway-group-standards and search for G1. This will return the most recent GERT8000-G1 as the top result (currently issue 6).

15 November 2017, Singapore: Trains collide at Joo Koon, leaving 36 injured

At 08:20 (local time), two passenger trains collided at Joo Koon station. One train – later deemed 'faulty' – was transiting between old and new signalling systems, allegedly disabling a 'software protection feature' on the latter via a malfunctioning trackside device. 36 people were injured.

27 November 2017, Belgium: Two track workers killed by post-accident runaway in Morlanwelz, train later collides with another at Strépy-Bracquegnies

At 07:25 (local time), a passenger train collided with a car on a level crossing at Morlanwelz in Belgium. Nobody was injured in the accident and subsequent fire; but during recovery operations one of the units involved became detached from the other and ran away for 8.7 miles. The runaway struck four track workers repairing the line at Morlanwelz, killing two of them, before colliding with a stationary passenger train at Strépy-Bracquegnies. Five people were injured in this second collision. Initial investigations suggest the runaway to have been caused by a broken coupling.

Learning from experience

Effective SCC is vital to the safe operation of the GB rail industry, and we have been working hard to improve our SCC. Yet 21 % of incidents have communications as a contributing factor. Why is this? And what can we do about it?

Even with the good work done on previous communications initiatives, and there being an ongoing focus on SCC across the rail industry, poor communications still play their part in a high number of incidents. Of course, most SCC are fine, but some leave a lot to be desired. Take, for example, the following conversation (based on a real incident).

The driver makes up his comment "pass the signal at danger I am standing at…", but he wasn't challenged by the signaller – and so he passed the signal at danger, which was initially treated as a SPAD, though this was later changed. If the correct protocols had been observed, then the outcome would have been different.

Clearly both the signaller and the driver made an attempt to follow the correct protocols, but neither succeeded. The signaller didn't take the lead, allowing the driver to take over the conversation, which in turn led to the driver making up an instruction. The result was a failure to come to a clear understanding - or a total success in coming to a complete misunderstanding!

How often do you find yourself or others gradually drifting away from the protocols? How easy it is to allow SCC turn into conversational 'chats' where protocols are not followed?

When this happens, errors and misunderstandings can result in incidents.

Signaller *Hello driver, it's Hornby Junction signalbox*

Driver *Two alpha nine zero at Sierra Alpha thirty-one*

Signaller *What it is driver, is Green Lane AHBs have failed, that's the set in front of you now. So there is no attendant on there, so I would like you to approach the crossing cautiously. Make sure it is clear before you go over and then obey all other signals.*

Driver *Ok thank you*

Signaller *Yeah, can you just repeat that back driver?*

Driver *Green Lane crossing failed…*

Signaller *Yeah*

Driver *Pass the signal at danger I am standing at…*

Signaller *Yeah*

Driver *Proceed cautiously across the crossing…*

Signaller *Yeah*

Driver *Obey all other signals…*

Signaller *Thank you very much, yeah OK, thank you very much*

Identifying details have been changed to ensure anonymity.

Newswire

29 November 2017, Spain: Heavy rains derail train near Arahal

At 10:20 (local time), heavy rains caused a train traveling from Malaga to Seville to derail near Arahal, leaving 21 injured, including one passenger in a serious condition. Services had been suspended due to the adverse conditions, but had resumed an hour later. The incident occurred an hour after that.

5 December 2017, Germany: 50 injured as passenger train collides with freight near Düsseldorf

At around 19:30 (local time), a passenger service struck a stationary freight train in Meerbusch, near Düsseldorf, injuring 50 people.

14 December 2017, France: Six children killed in crossing collision near Perpignan

A train collided with a school bus on a level crossing near Perpignan. At least six children were killed, and 18 people were injured. Unconfirmed witness reports say that the crossing barriers had been down at the time of the incident.

It's often said that air traffic control (ATC) is one of the most stressful jobs going. One of their tactics is to keep their SCC clean and neat. Conversations between ATC and pilots are considered to be exemplary in the field of SCC. But, being human, even they don't always get it right – and sometimes this has disastrous results. All these SCC are kept on cockpit voice recorder; and a quick search on Google reveals some terrifying incidents. For example, a captain was given clearance to take off ("…turn right heading two seven zero, runway two two, cleared for takeoff"), but the pilot had taxied to a different runway (which was half the length of runway two two). He subsequently failed to get airborne and crashed into the trees. The crew on the flight-deck seemed to have been more concerned with chattering amongst themselves, rather than concentrating on what they were doing.

But just how did aviation get its reputation for excellent SCC?

The worst ever aircraft crash, in terms of loss of life, was at Los Rodeos Airport, now Tenerife North in 1977. The Captain of a Boeing 747 jumbo jet commenced take-off, in thick fog, in the mistaken belief that he had been given clearance. As he was the most senior officer on board, and the airline's chief flight instructor, none of the crew felt able to question his decision. The plane collided with another Boeing 747 that was also still on the runway. Sadly, 583 people in the two planes lost their lives.

This horrific incident had a profound effect on how SCC was viewed in the airline industry. Standard phrases were introduced, along with a complete review of cockpit procedures. The lessons from Tenerife remain relevant today: if you have doubts about what you're being told: Challenge it! Question it! By doing so, you might stop a nasty incident. And those are lessons that are as relevant for the railways as they are for the skies.

One way to look at SCC is to think that 'every time we hold an operational communication we are agreeing a verbal contract, whether we realise it or not'. All those involved in the conversation enter into it with an aim of either giving or receiving information (or sometimes both), and achieving a complete understanding on both sides. The fulfilment of the contract is vital to achieving the aims of the communication. To be in a better place to prevent incidents, it's important that we regularly refresh our knowledge of the SCC protocols (to find out how, see p16), and that we then put the theory into practice and apply it in our day-to-day conversations.

18 December 2017, US: Overspeeding leads to fatal derailment on new line in Washington

At 07:33 (local time), a passenger train derailed near DuPont, Washington, on the Point Defiance Bypass, a new route south of Tacoma. Three people on the train were killed. The lead locomotive and several carriages went down the embankment on the south side of the bridge. Some 1,300 litres of diesel fuel were spilled, and several cars were crushed. Preliminary examinations suggest the train had been travelling at 78mph on a 30mph section of line.

22 December 2017, Spain: Passenger train strikes stops at Alcala de Henares, injuring 39

At 15:37 (local time) a double-decked commuter train struck the buffer stops at Alcala de Henares. In all, 39 people were reported hurt.

The Lowdown:

Phil Shemmings, Driver, South Western Railway

How does SCC affect the operational railway? What happens when it's done well – and what happens when it's done badly? RSSB's **Martha Parkhurst** met South Western Railway driver **Phil Shemmings** at the offices in Waterloo to find out.

Phil welcomes me into a meeting room above platform 10. The view would make many train spotters drool.

Phil is still relatively new to this. He's from a corporate background; he worked in public relations and company communications in a previous life: he already knew the value of clear messaging before joining the railway five years ago. Phil decided then to apply for the job that he'd wanted since the coal trains going past his window told him it was time to get ready for school. And in a perfect twist of fate, he now drives past that old bedroom window on his runs.

"Being a train driver requires a diverse combination of skills," Phil tells me. There's the driving, route knowledge, traction, and Rule Book information to know. But then there's also the less obvious skills: staying focused, recognising when you're tired, being aware of things that don't look quite right. "I've reported trespassers, animals on the line, damaged fences, open gates – all sorts!"

Phil tells me there's an interesting dynamic when he reports issues like that. From the cab, he gets a unique vantage point to spot obstructions on the line. Yet the signaller takes the lead in these conversations: they're better placed to see how the whole network fits together, using information from several drivers. Of course, during training, the importance of safety critical communications was drilled into Phil – as it is with anyone who operates on the running line. But how different is that from office communications?

To start with, in an office there's not a lot of chances for things to go horrifically wrong. Out on the running line, even a simple misunderstanding, such as incorrectly identifying a location, could potentially have very serious consequences. And plenty of communications have a safety angle, even if they don't seem to be expressly about safety. Phil's SCC conversations are mostly with the signaller, although he's also had conversations with the guard or control.

Most of the time these conversations happen without incident. Yet Phil has had experience of SCC going a bit wrong. For example, there was the time when, halfway

Newswire

24 December 2017, Poland: Passenger train collides with excavator at Old Kisielin – no reported injuries, but loco runs away when re-railed

A passenger train derailed when it struck an excavator at Old Kisielin. There were no reported injuries, but when re-railed, the locomotive ran away for around 14 kilometres, until the overhead line equipment was de-energised.

2 January 2018, Switzerland: Storm blows carriage off rails at Lenk, eight injured

During the afternoon, eight people were injured when a carriage in a passenger train was blown off the line during a storm in Lenk. Elsewhere in the country, a powerline was blown onto a motorway between Oensingen and Bern, leading to several accidents and the complete closure of the road for around two hours.

4 January 2018, South Africa: 12 killed in level crossing collision near Kroonstad

12 people were killed and 254 were injured when a passenger train struck a lorry at a level crossing near Kroonstad. The impact brought down the overhead line equipment, and seven carriages caught fire. The lorry driver tried to flee the scene but was arrested by local police.

The three key points when reporting an incident

- Know where you are
- Know what the problem is
- Know what you'd like to happen next

through a conversation with a signaller, the signaller said something which made Phil realise the signaller thought he was on the other line, going in the opposite direction! Phil had to stop the signaller and explain the error. But better to have noticed it while they were talking, and correct him then – than to move forward with information relating to a different piece of track. Who knows what issues that could have led to! Phil wonders if, perhaps when we listen to the other person repeating things back, as required by the Rule Book, we sometimes do it on auto-pilot so our brain can move on to the next part of the conversation, rather than really making sure they've understood.

And if that's what happens with just two people in the conversation, how much more difficult must it be when there's a lot of people on the call? Phil tells me that the red GSM-R emergency group call button can be a marvel, such as when a driver reported someone walking off the end of a Waterloo platform. The driver was clear, the signaller's instructions (all trains to remain at standstill) were also clear. But it can also be chaotic. Like the time when all the trains around Vauxhall were stopped, and all anyone said was "I didn't press the red button". Phil says it was confusing to be left hanging like that, with no one entirely sure what was happening. Eventually the signaller just ended the call…

Then, of course, there's the comms with members of the public. Phil tells me he was once standing at a platform, waiting for the signal to clear – there was a problem ahead. Suddenly, he heard the public address speakers in the train, hijacked by a practical joker, announcing that the train had stopped because there was a streaker on the line. And all the schoolboys disembarked onto the platform to get a view of this non-existent streaker. Oh dear.

So how can we improve SCC on the network?

Phil and his colleagues are the eyes and ears of the signallers. They need to report anything they see that doesn't look right – and can sometimes suggest a course of action based on their unique view point. It's ultimately the signaller's responsibility, but they might find the driver's advice useful.

Decide what you want to say before you make the call. Emergency comms can put staff under a lot of pressure, and it can be hard to remember all the bits of information to give. Practice makes perfect, but he suggests taking a bit of time – a couple of seconds maybe – to gather your thoughts.

Finally, it's all about learning. Immediately after a SCC conversation, Phil has to continue with his shift. But in his own time, he goes over the conversation, and thinks about what he could do better for next time.

Communications review

Communications review groups (CRGs) go through SCC recordings, and draw out any learning points.
Network Rail's **Claire Volding** tells us more.

As I walked around the table in Liverpool Street IECC laying the final paperwork out I stood back and realised just how much it reminded me of how they used to lay out the examination papers in the school hall; the A4 sheets in perfect right angles to the desks with a standard biro sat to the right.

I had fully prepped for this CRG, as I was chairing today. We had a special guest joining us: the Operations Manager was coming to verify some of the assessors. The majority of CRG members have qualifications which give them the tools to review communications, although not everyone in the group always has this - it's good to get as many ears involved as possible.

"Richard?" I called to the main office, "have you selected which comms we should use?" Richard, one of my signallers, had been selecting comms at random for me. It's important not to cherry-pick the conversations for review. It would be easy to go through the voice tapes and showcase my best, however there would be no learning then. You wouldn't want to pick at complete random though, or you may risk hearing someone ordering a pizza. So I usually download a number of SCC calls and then get a third party to select a few from the list at random.

So what sort of calls do we review? Well, ideally, they are high risk activities such as cautioning, taking line blockages, faulting etc. It's also good to review performance calls, such as talking to train running control, or passing information to drivers about any changes. Regardless of the nature of the call, the staff involved should follow the protocol of being accurate, brief and clear.

Our colleagues soon arrived, and were all bustling around the kitchen in the IECC. CRGs have representatives from TOCs, FOCs, maintenance and operations. This means that we can look at the communications from a cross-industry, cross-departmental view. Once it's time to start, we all sit round the table waiting for the first recording to break the silence. Each recording is played twice before we mark the communication against a set standard. We mark down our findings, and then move on to the next communication. We'll usually go through between 12 and 15 calls during a meeting.

After a long meeting and many cups of tea, we are all done! Our guest tells us he is pleased with the meeting and happy with our assessing – phew! As chair, it's now my duty to send out the output from each call. The line managers of the recorded staff need to follow up: they share the ratings with the staff who were listened to, whether good or bad, so that people can learn from their calls and we can continue on the journey towards ever better communications on the railway.

So even though it felt like an exam at the start of the day, on reflection it isn't. It's there so managers can feed back the good, highlight room for improvement, and give staff the tools they need if they are struggling. All this contributes towards our journey towards better SCC on the railway.

The Grading system

SCC conversations reviewed by CRG can be classed as:

- competent
- competent with development
- not yet competent
- high risk.

groups (CRGs)

	CRITERIA	ACTION
Competent	All of the communications protocols have been followed. The communication content was delivered in a concise, and a clear manner applicable to the parties involved. A clear and positive understanding was reached. Lead Responsibility was taken and the information was delivered in a structured order.	NO ACTION REQUIRED – It is recommended that the candidate is given feedback during the next assessment & development day
Competent with development	Some of the communications protocols have been followed, lead responsibility was demonstrated. The likelihood was that a clear understanding was reached.	FEEDBACK REQUIRED – Area for development falls within the candidate's behaviours, feedback to be given as part of their capability assessment
Not yet competent	Some of the communications protocols have been followed, but with significant variations and with a possibility of a misunderstanding occurring.	DEVELOPMENT ACTION PLAN REQUIRED WITHIN 7 DAYS OF REVIEW – Area for development includes some safety criteria therefore remedial action required as soon as possible (no later than 7 days)
High risk	No attempt has been made to follow any of the communications protocols. A very high possibility of a misunderstanding occurring.	IMMEDIATE ACTION REQUIRED –- The CRG is required to speak to the candidate's line manager immediately, suspension of their authority to work may be considered, refresher training required

CRGs do important work to make sure we keep improving. But what's it like to sit on one? Mobile Operations Manager **Mark Cook** gives us the inside track.

I've been working for Network rail for about 15 years, starting with 10 years signalling on both East Anglia and the North London Line, followed by the last 5 years as Hackney (flexi) MOM. I got involved in the CRG when my line manager (Claire Volding – see previous article) asked if I'd be interested. Once I was told the purpose of the group, I was keen to get started.

The CRG meets periodically to listen to recorded SCCs. We then assess these individually, and then discuss them as a group to decide what level the staff on the recordings have reached (see box). The marking sheets provide enough detail about what's required for each grading to know how each candidate should be marked. When we've decided individually, we discuss as a group how we felt about the message and how it was delivered, then we share our individual notes and thoughts. We then reach a decision on how to mark the conversation. So far, the group has always agreed on which category the candidate falls into.

The CRGs bring benefits to the railways, as we can continue to improve our SCC standards. This will lead to a safer and more reliable railway. Standards are definitely improving, but we still have some way to go: old habits and terminology will be hard to eliminate. The CRG is a great tool to help highlight areas which may need improvement; there are segments of the industry that need more improvement than others but in time, and with development, I believe they too will reach high standards. At the same time, the CRGs allows positive feedback for the people who are meeting the required standards, encouraging them to keep up the good work.

I like being involved with the CRG as it adds variety to my role, and also gives me the opportunity to use my recently obtained assessor's qualification. I also believe it has improved my own personal SCC, as I learn by listening to other people's strengths and weaknesses. There will always be room for improvement, feedback and development for people that require it will continue to raise our standards.

Improving SCC into the future

As we've found out in this issue of Right Track, SCC is crucial to the safe running of the railway. But with changes in the technology we use to communicate with each other, and improved understanding of the human factors of communications, how do we make sure we keep on improving our SCC and make the railway even safer?

Well, the good news is that the industry is looking at this. RSSB, along with partners from train and freight operators, Network Rail, and the ORR, has recently developed a training course designed specifically to improve training and refreshers on SCC for anyone and everyone who works on our railways. To make it as useful as possible for those who will use it in training, operational staff – who have safety conversations every day – have been consulted throughout the process.

The training course can be done over a full day, or as six safety hour discussions. They could also be used in post-incident reviews, to prevent future incidents.

Because it's been developed by people from across the industry, for the first time all operational roles will be SCC trained to the same national standard. This could help to reduce the amount of operational incidents, because we'll all be singing from the same hymn sheet, so to speak.

There's also a communications manual to support the training course, which provides additional guidance and practical examples of good and bad SCC. This is to assist all rail staff required to communicate verbally with others during their operational duties.

The new SCC training course is made up of six modules:

- Foundation module: all operational conversations are safety critical
- Protocols 1
- Structure: how to apply lead responsibility
- Protocols 2
- Confirming: reaching a clear understanding
- Skills: listening and questioning

If you would like more information on this, or any other SCC material, please contact us via customer-portal.rssb.co.uk

To find out more about the new training course, go to www.SPARKrail.org and search "T1078" (you will need to login to access all the materials)

Understanding: when to use safety critical communication, why is it important?

Protocols: ABC-P, phonetic alphabet, numbers, time, standard words and phrases, the emergency call

Communication Structure: message structure, lead responsibility

Confirming Understanding: use of 'repeat back', potential communication barriers questioning and active listening

Communication skills: working with people, assertiveness, challenging, considering others' needs

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