rightTrack

Issue 30 **Winter 2020**

SPECIAL ISSUE on Spoken safety critical communications

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Hello, and welcome to issue 30 of Right Track!

Anyone who has played "Chinese Whispers" as a child will know that what is said doesn't always match what is heard. And though we laugh when a perfectly innocent phrase comes out as something quite different at the end, in real life it can cause problems. We might miss catching up with friends because we get the time or place wrong; or argue with family because nobody was clear on exactly what the plan was.

The outcome can be even worse on the railway. We're in an environment with moving trains, heavy plant and high voltages. Misunderstandings can put us, our colleagues, our passengers or the public at risk. That's why there are protocols around spoken safety critical communications, or SSCC. Yet despite the need for good SSCC, poor SSCC is still cited as a contributory factor in a lot of incidents.

This issue of Right Track is focused entirely on SSCC: what it means, why it's important, and how to get better – as individuals, and as a team. We all need good SSCC to keep us safe, so whether you're a MOM, track worker, COSS, shunter, station ops staff, signaller or driver, you should find something useful.

If you have any comments on any of the articles in this issue, please let us know by emailing righttrack@rssb.co.uk.

RSSB A Better, Safer Railway

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RSSB The Helicon 1 South Place London EC2M 2RB Tel: 020 3142 5300 Email: ***righttrack@rssb.co.uk*** *Web:* ***www.rssb.co.uk***

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Spoken Safety Critical Communications

Spoken safety critical communications, or SSCC, form an essential part of many of the tasks that we undertake every day within the railway environment. We define SSCC as "any operational communication between staff relating to train movements, signalling or infrastructure" (RIS-8046-TOM, see page 14).

Virtually every rule book module contains details concerning communications of some description; the diagram below shows just some of the occasions when SSCC would be required.

Every job role referenced in the Rule Book has a part to play in ensuring effective SSCC are carried out, from driver and signaller to PICOP and Engineering Supervisor. It's vital that we understand each other when discussing operations, plant or infrastructure that could affect the safety of the people who work on or use our rail network. So, when we're engaged in SSCC, we must use the correct protocols and procedures.

There are four components to the standard SSCC structure:

The Opening - The participants establish each other's identity and location. The person answering the call identifies themselves and their location. The aim of this section of the conversation is for the participants to ascertain to whom they are speaking, and to establish that this is the correct person at the correct location. For example, if a driver were reporting a trespasser to the signaller, a precise location would ensure that the correct affected trains could be informed.

Information - The participants exchange information and discuss what is happening. The aim of this section of the conversation is to establish a clear understanding between the participants as to what has happened or is happening. For example, if the conversation were about passing a signal at danger, this is where the agreement between the signaller and driver would ensure that the correct signal had been identified.

Actions - The participants exchange information regarding what action needs to be taken. The aim of this section is for instructions to be passed from one participant to the other. Instructions can be passed in one or both directions, so either or both participants can finish the call with actions to remove the risk. For example, when single line working is implemented, it would be important for the signaller and the pilotman to agree the actions that are to occur, including how movements in the wrong direction are to be controlled, and any level crossings that would need to be taken under local control.

Confirmation - The participants confirm that they have understood the situation and what actions they are required to take. The aim of this section of the conversation is to ensure that a clear understanding has been reached between the participants. For example, a signaller and a COSS discussing the taking of a line blockage must agree the line(s) to be blocked, the limits and when it is to be given up.

Of course, the objective of SSCC is not unique to spoken communication, it is true of any type of communication whether it be verbal, written or by hand signal. However, messages or instructions are being relayed, all parties involved must have a clear understanding of what is required to be done and how any movements are to be controlled.

Human Factors of spoken safety critical communications

The railway is run by people, so the way we communicate forms the basis of much of the way it operates. This includes written communications such as late notices, emails about rosters, maps describing the railways and so on. But spoken safety critical communications (SSCC), cover a range of communications: they can be face to face between a driver and their driver manager, via the radio between a driver and shunter, or on the phone between a signaller and PICOP.

Non-Technical Skills (NTS), basically 'how we do what we do', also relate to SSCC. The technical task is to communicate with someone, and the non-technical skill is how that communication takes place. For example, there's a multiple signal failure, so the signaller puts Emergency Special Working (ESW) in place. The signaller and driver complete an ESW ticket, as per section 5.4 of Module S5 of the Rule Book. This is the technical task.

How they do it is non-technical, but just as important. They could use slang, speak unclearly, fail to check the details or fail to check the location of the nearest signal (if the driver is not sure where they are). They would still have completed the task as per the Rule Book requirements. The signaller and driver in the same scenario could communicate the details clearly, using standard phrases, making sure they are actively listening to each other and not allowing themselves to be distracted by anything external to the cab or signal box. They could check that they have both reached the same understanding as to the limits of the ESW and challenged any aspects or details they are not sure of. In the first version, there is a higher likelihood of making an error, or not noticing an error; in the second version they reduce the chance of there being an error or misunderstanding and are positively using NTS.

It feels like a small, thing, but it is important. Railway history is littered with incidents where SSCC have been one of the causes. To help us all improve in what is such an important skill, the industry has spent years and a lot of resources to improve the processes around SSCC. This has included amending and clarifying the Rule Book, implementing a standard, providing an industry wide communication training programme and implementing Communications Review Groups (CRG) within operational areas.

While improving communications seem like a simple problem to fix, the range and consistency in communication failures, and the seeming lack of improvement over time, suggests that it is not. So why do other safety critical industries not suffer from the same problem? If you listen to the voice tapes of an air traffic controller, you would hear a very different standard of communication compared to the majority of railway communications. Why? There are many answers to this, but one factor is the emphasis put on communications as a key aspect of the job. Organisations in those industries select staff who are 'good' communicators, and monitor communications performance as part of their standards. They value SSCC as a key aspect of safe performance, and

Camden Junction South, 28 February 2017

Just after 01:00, a passenger train travelling towards Euston nearly struck a track worker in the vicinity of Camden Junction South. The train was travelling at about 47 mph at the time; the track worker managed to get clear of the line before it passed. About four minutes later, the same train was involved in another near miss with a second track worker some 510 metres further up the line towards London. In this case, the track worker was unable to get clear of the line, but the train stopped just before reaching him.

The signaller had authorised track workers to go onto a line over which he had just routed a train, having overlooked the fact that engineering work was taking place on that line. This was caused by a loss of information during the processes for implementing the engineering work. In turn, this was due to the layout and formatting of documentation associated with the work, as well as the nature and implementation of local processes at the signalling centre.

RAIB said:

"The Rule Book contains a general requirement that all verbal communications must be repeated back to the other person so that they know the information has been correctly understood. Signaller A did not repeat back the list of blocking points, probably because this would have significantly extended the length of the phone call and because he and the PICOP were both reading from the WON anyway... Whilst there is a chance that a repeat back might have detected the omission of Line A, the RAIB considers that it is also possible that, in this context, signaller A would have read the limits automatically (i.e. with little conscious attention) and the omission could still have occurred."

Ealing Broadway, 2 March 2016

At 01:29, the leading bogie of a London Underground District line train derailed just outside Ealing Broadway. The train was travelling at less than 5 mph when it derailed. None of the 19 passengers and two members of staff on board were injured.

The train had been held at a red signal since 00:35 because of a track circuit failure. Staff had been establishing which points needed to be secured for the train to safely pass the signal at danger. Due to the inadequate level of information available to the service control staff, the poor relationship between the two control rooms involved, and a lack of understanding of the way in which the type of points involved were shown on the various available diagrams, the operational control staff did not identify the correct positions of all the sets of points that needed to be secured in the route. Consequently, the train was authorised to pass the signal at danger with a set of points in the wrong position for the route it was due to follow.

The service control staff were not completely clear, from the information available to them within the control rooms, which points they needed to set in which positions and so they asked the maintenance team for assistance. The two teams did not communicate effectively and did not reach a complete understanding of the requirements for the route.

RAIB said:

"Rather than challenge the service controller regarding the decision that the route was set and secure, the signaller chose to give an unconventional message to the train operator after passing the standard 'authority to pass a signal at danger' message. He did this because he was unsure about the situation."

so put money and resources into training and developing those skills.

But on the railway, the problem with poor SSCC continues.

And that's because it's a very complex topic. The issues around failures in communications are multi-facetted. So, we need to adopt a number of different approaches to rectify and improve our SSCC. The Rule Book requires us to repeat messages back to confirm that we understand what is being said to us, but incidents such as the near-miss with track staff at Camden Junction show how there is more to good communications than just repeating messages back. Summarising the message rather than repeating it back word for word can sometimes be a more useful way to check we understand the actual message and the intention of the other person. A small child can sing along to the latest hits, but that doesn't mean they understand the lyrics. When dealing with SSCC, we have to consciously pay attention to what the other person is saying, not just repeating what's in front of you parrot fashion.

Other times, we may know what we should communicate, but may struggle because we're not certain, or we find it difficult to challenge (see RED 42). Sometimes we just don't have the confidence to speak up, so asking for clarifications can be difficult. The impact of these social dynamics was part of the issues that led to a derailment at Ealing Broadway.

Using NTS is just about thinking about how we are doing a technical task and choosing to use skills which make it more likely to get a safe and successful outcome. In terms of the NTS related to communication, these are:

- Listening – the ability to actively listen to another person, managing distractions and responding appropriately
- Clarity – the ability to communicate clearly and concisely, using standard protocols
- Assertiveness – the ability to challenge others as appropriate and state your own view or needs without becoming aggressive
- Sharing information – the ability to report relevant information and hazards to colleagues and passengers, thinking of what information the other person needs before communicating, and completing forms correctly as and when required.

These seem like skills which we can all do and are simple to use. But they also help describe what more operational staff need to do beyond just using the phonetic alphabet and speaking numbers singularly. How we communicate is just as important as what we communicate.

The Lowdown:

Malcolm Ashworth, Relief Signaller, Network Rail

Malcolm has the railway in his blood. His father started as a porter, then became a signaller. Malcolm himself had a few jobs before the railway, including landscape gardener and chef, but always wanted to be a signaller. He started 15 years ago as a crossing keeper, working the manual gates at Norbury Hollow Level Crossing. In 2009, the signalling school at Leeds beckoned, followed by a position as resident signaller at Furness Vale Signal Box. "There's nothing like that first shift, you pass out, and when you're left alone, that's when you really start to learn from experience," he says. He's now a Grade 4 relief signaller in High Peak, Derbyshire, where he grew up. Increasing rail freight traffic around here means keeping heavy lorries off the roads and preserving the natural beauty of this idyllic place.

Malcolm works eight different signal boxes, including locations on the Hope Valley route between Manchester and Sheffield. Some are passenger and some freight only; but they're all traditional lever frame boxes, with both Absolute Block and Track Circuit Block systems. There's a rich mix of semaphores, colour lights, manual points, ground signals, and single lines with electric token block. With such variety, Malcolm says "I'm never unhappy to go to work, I love being part of the railway. I work with some great people and have a good working relationship with management. We all want to move the trains safely and efficiently." Across the country, modernisation is closing many of these boxes, and Malcolm considers himself very lucky to still be able to work in them. But this comes with great responsibility: "Network Rail put a lot of trust in me, as a lone worker in a box. I don't want to let them down, and keep the people on our railways safe. When I train new signallers, I remind them every time a train goes by that the passengers' safety is in our hands."

There's always something new to learn, information about the area under your control: access points, mileages, lines of route, and timetables of services. And, of course from the moment you start on the railway, you learn to use spoken safety critical communication (SSCC): from the phonetic alphabet and using prompt sheets, to making sure you know the process for achieving clarity. For Malcolm, SSCC has been paramount.

Newswire

7 November 2019, Norway: Freight train derailment at Bergen Central

At 03:00 (local time), a wagon in a freight train derailed on pointwork at Bergen Central, causing two containers to fall foul of the adjacent line. There were no reported injuries, but the incident did cause material damage and led to significant delays.

8 November 2019, US: Rear-end collision leads to secondary impact in Pennsylvania

An empty oil train struck the rear of a stationary container train in Hempfield, Pennsylvania. Several wagons derailed and fouled the adjacent line, where they were struck by a third freight, also carrying containers. The impact led further vehicles to come off. There were no reported injuries or spillages.

11 November 2019, India: Twelve injured in Hyderabad head-on collision

Two passenger trains collided head-on at Hyderabad. 12 passengers sustained minor injuries and were treated at a local hospital.

From his boxes, he conducts SSCC with drivers, other signallers, COSSs, PICOPs. A lot of SSCC are within T3 possessions, with records of arrangements and line blockages. SSCC is vital for people on the track to work safely. A conversation with a driver could be about anything: cautioning the train, examining the line, or passing a signal at danger. “Our SSCC on the railway should be on a par with air traffic control. We’re getting there, but we need to make SSCC a priority, and keep learning from past mistakes,” Malcolm says.

The most challenging SSCC Malcolm has had to do? A prolonged period of degraded working, due to both block and bell failure between his signal box and the next signal box. He was unable to obtain line clear, and so couldn’t clear the section signal. Malcolm had to ask each driver to pass the signal at danger. “Each time I had to speak to the signaller at the next signal box, get the train accepted by telephone, set the route, checked and locked throughout. I then had to tell the driver the reason for the failure and ask them to pass the section signal at danger. It was very repetitive, and it would have been easy to become blasé; but to prevent any incident, it had to be correct every time. But we had no incidents. I enjoyed giving the drivers the right information, and every time it felt like a job well done.”

Network Rail has a good attitude to SSCC assessment and training. It constantly monitors SSCC between operational staff, to spot mistakes and learn from them. Each year, the Local Operations Manager (LOM) assesses six instances of a signaller’s SSCC, covering a range of events from line blockages with a COSS to authorising a train to pass a signal at danger. The signaller receives feedback, including ways to improve their SSCC to reduce risk on the operational railway. “Last time I had my competency testing, the SSCC was about a potential trespass at a station. The BTP and civilian police couldn’t find anyone, but my LOM was impressed with how I

12 November 2019, Bangladesh: Collision at Kasba kills at least 16, SPAD suspected

At 03:00 (local time), a passenger train bound for Dhaka collided with the Chittagong-bound ‘Udayan Express’ at Kasba. At least 16 people were killed and over 100 were injured. It was later reported that the driver of the Dhaka service had passed a signal at danger.

22 November 2019, US: Train strikes abandoned vehicle on Santa Fe Springs crossing, four passengers injured

At around 05:35 (local time), a Metrolink service struck an abandoned camper van, which had stalled on a level crossing in Santa Fe Springs, California. The train’s cab caught fire, the flames also engulfing the van. Four rail passengers were injured.

26 November 2019, Argentina: Man looking at mobile falls from platform to track in Buenos Aires

A passenger fell to the track at an underground station in Buenos Aires. He had been staring at his mobile telephone. A fellow commuter rushed to his aid and managed to pull him back to safety.

dealt with it," says Malcolm. Last November, he and other signallers joined P-Way and signal and telegraph (S&T) staff in Warrington for a SSCC workshop. "I think that's a very good idea," he says. "People from different departments within Network Rail, but who usually only talk in the context of SSCC, are learning together."

But Network Rail staff are not the only people Malcolm needs to have SSCC conversations with. He deals with staff from various train and freight operators, including Freightliner, DB, GBRf, Northern, TPE and EMR. "In all the time I've been on the railway, I've never been in a workshop with staff from the TOCs and FOCs. That's the biggest issue with SSCC training and competency for me. We need to get away from the 'them and us' mentality, and have workshops with drivers, shunters, guards, conductors and signallers together: staff from all parts of the railway who use SSCC as part of their job. If we did that we'd be on to a winner. Even though we work for different organisations, we all work for the railway, getting people and goods from A to B safely. The organisations collaborate at route level, but the staff like drivers and signallers who use SSCC should be more involved together."

Although there's a way to go, we have made progress in SSCC. For example, the GSM-R system. "It's a fantastic piece of kit," says Malcolm. "It allows you to speak to drivers clearly, and you can ring them directly. Before, we had national radio network (NRN), which was very poor quality, with the call frequently cutting off or breaking up; the clarity was like they were on the moon. You also couldn't initiate a call, and emergency calls had to be routed through Operations Control first. Now, I can initiate an emergency call and identify trains individually." Having GSM-R also means the drivers are safer, as they can receive and make calls from their cabs, removing the risk of drivers going on the track to the signal post telephone in the cess. P-Way staff also use GSM-R handheld phones, so they can make SSCC calls even when there's poor mobile reception. But older technologies are not obsolete yet: Malcolm uses back to back radios with ground staff based in the quarry sidings.

So how does he keep familiarity out of his SSCCs? "Even if I know them personally, we've got to come to a clear understanding, repeating back. If that happens, you won't have a problem. Sometimes you have to be assertive and challenge other people's SSCC, but without coming across as rude. There doesn't appear to be that much poor SSCC, and they are certainly better since we got the GSM-R phones."

In this environment, you need to have good communications. You never know what's around the corner: at any moment, Malcolm could be faced with a broken rail, rough ride, trespass, or a GSM-R emergency call. His SSCC skills need to be ready for any of them.

RAIB report: safety critical comms at Bagillt

It's one of those things that usually crops up somewhere. What is? Well you don't know, do you? You don't know, because I've been deficient in my 'comms'. It's surprising the number of people who are. Take the recent incident at Bagillt user-worked crossing in Flintshire, for example.

It happened just before midday on Friday 17 August 2018. Of course, that sentence makes it look like there was a bad accident, when some might say (with some small surface-level justification) that nothing happened. And they would be right. But it could have done.

A passenger train passed over Bagillt crossing just as an articulated lorry cleared the crossing. The signals had not been placed to danger to protect the interface, as they should have been, so the train driver wasn't warned. A person assisting the lorry driver, who was walking back over the crossing to close the gates behind the vehicle, was alarmed by the approaching train and ran off the crossing, considerably shaken.

The lorry driver's assistant had telephoned the signaller and obtained permission to cross, but the signaller had not stopped trains approaching, as the Rule Book demands when a large vehicle is involved. The user had not told the signaller that the vehicle was large, as required by a sign displayed at the crossing. The signaller did not ask questions to establish the size of the vehicle and didn't know that most people using this crossing did so with heavy goods vehicles (although some Network Rail staff were well aware of this).

In its report on Bagillt, the RAIB investigation identified several inconsistencies in the advice Network Rail gave to signallers regarding level crossings. Part of the problem with the SSCC used by the signaller was that Network Rail's example conversations don't follow the correct safety critical communications protocols. These contributed to the failings in the signaller's SSCC.

The shortcomings in the signaller's part in the example conversations are that they:

- Don't repeat back the crossing location,
- Ask the user several questions at once; and
- Don't confirm vehicle type during the second example conversation.

In its report on Bagillt, the RAIB pointed to a 2014/15 briefing paper which includes examples where the signaller's 'lines' don't follow the safety critical communication protocols promoted by Network Rail. These protocols, which include standard words and phrases, how to give the time and so on, are included in RSSB's publication Safety critical communications– the manual, dated November 2017 and available on Safety Central (Network Rail's web-based system for communicating safety information with rail staff).

Network Rail requires signallers to lead conversations with crossing users, seeking additional information from them when necessary. This helps mitigate the fact that most crossing users aren't expected to follow safety critical communication protocols (and probably wouldn't even know what they were anyway).

The key piece of information missed during this incident was the fact that the road vehicle involved was big and slow moving (in comparison to some vehicles, at least). The risk that such vehicles pose to the railway was graphically demonstrated at Hixon in January 1968. 11 people were killed and 45 injured when a train struck a low-loader at an automatic half-barrier crossing. This was Britain's worst ever level crossing accident.

Hixon - copyright Trinity Mirror - Mirrorpix - Alamy Stock Photo

The Culture of SSCC

Taking the lead and developing the confidence to challenge.

In an ideal world, if we observe risky behaviour, or acts which deviate from company rules, we'd speak up. However, while most people may recognise this as being the right thing to do, there remains a considerable gap between what people believe they should do (following what the rules and procedures say, and working how managers think work is done), and what they actually do (how we actually work, how the procedures are followed or not). There are various reasons for this: it could be that we don't feel competent to challenge, or we feel embarrassed to challenge a worker with more experience or who has a strong personality. We might want to avoid creating any kind of conflict with that person, especially if we often have to work closely together. We might even think that challenging is just not part of our job. But safety is a part of all of our jobs, so how do we create an environment where people feel comfortable to speak up?
Is it even possible?

"Culture" is a term that is bandied around quite a lot these days. You may have heard terms such as 'safety culture' or 'just culture'. But what do they mean? And more importantly, what does it mean for us at work, and for our organisation?

In essence, culture describes the values that are shared by an organisation and its employees. In turn, this influences the attitudes and behaviours of everyone who works there, as they work towards the same goals. For example, a just culture is one which focusses on learning rather than blame. The whole organisation, from shop floor to CEO, turns honest mistakes into learning opportunities, but wilful violations are not tolerated. Safety culture forms part of the overall culture of any organisation. It defines the attitudes and beliefs of staff and management around health andsafety performance.

Psychological safety is part of this safety culture. It is the idea that our working environment should enable and encourage us to challenge each other, querying assumptions and performance. A culture with good psychological safety gives us a sense that we won't be ridiculed or punished for speaking up. Role clarity is strongly associated with psychological safety. When we have a clear idea of what's expected of us, then we're likely to have more confidence in our role, and feel more empowered to challenge others, especially in terms of spoken safety critical communications (SSCC).

More specifically, the rules, protocols and guidance around the verbal contract that should be followed when carrying out SSCC. SSCC are a large part of many frontline roles, such as shunters, drivers, controllers, signallers, track workers. Yet, in an analysis of SPAD reports from 2016/17, SSCC was cited as one of the top five causal factors for

For more information on safety culture, and access to the RSSB assessment toolkit, take a look at the safety culture toolkit pages:
http://safetyculturetoolkit.rssb.co.uk/home.aspx

Newswire

7 December 2019, Norway: One killed in collision with excavator at Storforshei

At 16:04, a freight train collided with an excavator which was undertaking drainage work at Storforshei. The excavator driver was killed by the impact.

9 December 2019, Canada: Dangerous goods derailment leads to fire in Saskatchewan

At 01:00, a Canadian Pacific oil train heading east from Alberta to Oklahoma derailed near Guernsey, Saskatchewan, after experiencing an automatic brake application. A hopper wagon and 33 tank wagons were involved. There were no reported injuries, but the derailed vehicles came to rest in various positions over a spread of 500 metres. Around 20 were breached and leaked oil, which subsequently caught fire.

14 December 2019, US: Staff member killed in West Virginia freight derailment

A member of staff was killed when a freight train derailed near a chemical plant in Washington, West Virginia.

many of the incidents, and 16.8 % of reports had at least one causal or contributory factor around SSCC. Of the incidents where verbal comms was an issue, 53 % of these were due to "not communicating (or communicating late)". Not communicating could be due to a number of issues; the person / people involved may not have known what to say, or may not have known they had to communicate anything. Or, they may have been worried about questioning an instruction which they knew was possibly incorrect. Creating a positive safety culture, where psychological safety is valued, could help to reduce the occurrence of these types of events.

The good news is that psychological safety can develop, and does develop quickly in environments where we have to work together to get the job done. It's not quite as fast when people can complete their jobs more independently. The railways have a great potential to achieve psychological safety, as many of our roles are inter-dependent, and safety of our passengers, colleagues and ourselves is so dependent on having good SSCC.

Having a shared team goal or purpose can strengthen our psychological safety, and encourage us to be open and support each other. In turn, this will make it easier for us to report errors and unsafe conditions. This makes it easier to identify, investigate and learn from issues, so that we can make improvements, ultimately preventing repetition, making us all safer.

Cultivating an environment with good safety and psychological safety cultures allows us to understand errors and unsafe behaviours more effectively. As we start to feel safe raising safety concerns, we become more willing to be truthful about our own actions, and more willing to ask questions to clarify and challenge others. This makes investigations easier, and recommendations more effective.

14 December 2019, India: Derailment kills 39 in Andhra Pradesh

The Hirakhand Express derailed near Kuneru, Andhra Pradesh, killing 39 people and injuring 69 more. Initial reports suggest that the incident was caused by a rail fracture.

21 December 2019, US: Freight derails on bridge near Harpers Ferry

At around 02:30 (local time), a CSX-operated freight derailed on a bridge near Harpers Ferry. Two of the train's seven wagons (all of which were empty) fell into the water below, damaging a footpath used by visitors to the Harpers Ferry National Park. There were no reported injuries.

1 January 2020, US: Freight derails and loco falls into river near Bonners Ferry, crew uninjured

Just before 21:00 (local time), a freight train carrying dangerous goods derailed, causing the locomotive to fall into the Kootenai River, near Bonners Ferry, Idaho. There were no reported injuries to the two crew members, who were rescued by boat some two hours after the incident.

Communications in Possessions

Spoken Safety Critical Communications (SSCC) are vital for maintaining safety on the UK's railways. **Simon Wilkinson, from Network Rail's Operations Principles & Standards team,** speaks to **Right Track.**

SSCC conversations within possessions happen every day. Typical examples include conversations between the signaller and PICOP to discuss the possession arrangements, the PICOP and Engineering Supervisor to discuss worksite arrangements, or the PICOP and drivers for any train movements into or within the possession. These SSCC conversations need to identify and check safety critical items within the possession, such as roles, contact details, location, WON item number, and worksite mileages. These are exchanged between the PICOP, Signaller and Engineering Supervisor, who discuss the information about the possession.

Anyone carrying out safety critical roles within a possession, or uses SSCC, must clearly understand the risks and how these are to be mitigated. Each person involved in SSCC in a possession must be clear on exactly what needs to be done, and how the possession protection, worksite limits, any trains and on-plant movements will be controlled and managed. This may be done via mobile phone or radio, but is often done face to face. In each SSCC conversation, one person will state details such as which line (or lines) are to be blocked, protecting signals, time, headcodes of trains that are associated with the possession, point numbers, level crossing locations and arrangements, and access points. The second person repeats this information back to confirm understanding between the two parties.

"It is important that the conversations are accurate, brief, clear and remain professional."

"When we conduct SSCC, we must state our messages clearly; making sure to check that the other person has understood the message and any actions expected of them."

Newswire

2 January 2020, The Netherlands: Passenger train derailment near Den Haag Centraal

Just before 12:30 (local time), a passenger train derailed between Den Haag Centraal and Den Haag Ypenburg. There were no reported injuries.

7 January 2020, Mexico: Seven killed in crossing collision at Vicam

A passenger train struck a bus on a level crossing in Vicam, near Guaymas. The bus was dragged some 20 metres by the impact. Seven people were killed and 36 were injured. Reports suggest that the bus driver, who was unhurt, had tried to beat the train to the interface. He was later taken into custody for drug and alcohol testing.

19 January 2020, Australia: Freight derailment in Queensland damages track and overhead line

At around 13:00 (local time), an empty coal train derailed near Middlemount, Queensland. There were no reported injuries, but the track and overhead line equipment were damaged.

As rail workers, we must take personal accountability for how we communicate. We shouldn't rely on one person to make sure we communicate safety conversations correctly. We must all do our part to promote the standards of SSCC across the whole rail industry, which in turn will have a physical impact on ours and others' safety. If we all take personal responsibility in our approach to SSCC, we set good examples to our co-workers; and their professional SSCC in turn encourages us to be careful in the way we communicate safety-critical information with them. This all creates a virtuous cycle where we constantly improve our own and each other's safety. However good we become, we always need to be mindful of the dangers of over familiarity, and avoid the tendency to talk over each other during these conversations.

SSCC within possessions and worksites conveys information that is important, and assures the safety of staff working within the possession. When we conduct SSCC, we must state our messages clearly. This includes making sure that the other person has understood the message and any actions expected of them. In a possession or worksite, there are various roles and responsibilities that will need to have safety critical conversations. For example, a signaller to a PICOP, and a PICOP to an Engineering Supervisor. These conversations must always be accurate, brief, clear and remain professional.

With any safety critical communication, the person receiving that communication must acknowledge it and repeat back what has been heard, giving an outline understanding of any actions that are required, and seeking clarity if there is any doubt. SSCC must always have a common structure and have a professional tone.

Example of a Train Movement into a Possession

This is a typical conversation between a PICOP and driver which demonstrates the importance of safety critical communication. This is to ensure that both the PICOP and driver come to a clear understanding of locations, instructions and any actions required are received clearly and understood by both individuals.

The PICOP meets the train at the possession protection to allow further movement into the possession. The train stops at the possession limit boards (PLB) and the PICOP goes to talk to the driver to gives them instructions before proceeding.

PICOP: Driver, I am [name] from [company], the PICOP for this possession between [XXXX] and [XXXX].

Driver: OK, I am the driver of headcode train [XXXX] understood.

PICOP: Driver, when I have removed the detonator protection and the Possession Limit Board in front of you, I want you to move your train down to the worksite marker boards which are located at [XXXX] Junction, mileage [XXXX] and proceed at caution and be prepared to stop short of any obstruction. The Engineering Supervisor will meet you at the marker boards where they will give you further instructions to enter the worksite.

Driver: OK PICOP. When you have removed the detonator protection and the PLB, I am to move my train down to the Worksite marker boards which are located at [XXXX] Junction, mileage [XXXX] where the Engineering Supervisor will meet me and give instructions before entering the worksite.

PICOP: Driver that is correct. I will now go and remove the detonators and PLB protection and once I have done that and moved into a position of safety you have my permission to proceed.

Driver: OK.

29 January 2020, Australia: Freight derailment struck by passenger train near Barnawartha

Just before 18:00 (local time), a freight derailed near Barnawartha, Victoria. 30 wagons were involved, many of which ended up foul of the opposite line, where they were struck by a passenger train travelling to Melbourne. 19 people were treated by paramedics, though none were reported seriously injured.

Find out more

Network Rail has published a standards NR/L2/OPS/033: *Recording Spoken Safety Critical Communications between Possession Management and Engineering Trains / On-Track Plan Drivers when Operating in Possessions and Worksites*. It implements a procedure to mitigate the risks associated with verbally controlling the movement of engineering trains and on track plant. In addition, RSSB has issued a Rail Industry Standard (RIS-8046-TOM) which sets out requirements regarding SSCC (see page 14).

Improving our spoken safety critical communications

Clear and effective communication is vital, not only to safety, but also to good teamwork and efficiency. The industry has developed many initiatives to improve communications, including communications training and assessment. Despite these efforts, weaknesses in spoken safety critical communications (SSCC) continue to be implicated in rail incidents. The rules around communication on the railways, including requirements such as repeat back and use of the phonetic alphabet, aren't always followed, which can lead to errors. There are a range of reasons for this, such as organisational culture, peer pressure and usability of procedures, but also underlying competence issues. But coming to a clear understanding requires more than this.

RSSB has recognised that there is a need to improve competence in this area and create a consistent set of resources to help do this. We have worked with industry to create resources which can help staff on the operational railway improve their SSCC.

We have created a series of SSCC training materials for all operational grades, roles and levels of experience. So whether you're a driver, signaller, shunter, track worker, depot staff or station staff or any other operational role or manager of someone in a safety critical role, you should find it useful. The six modules (see table) are designed to flow from one another to give a comprehensive overview of SSCC best practice, or to dip into to refresh areas where skills may have faded. Although designed to be briefed in group settings, anyone in the industry who feels the need to brush up on a specific area of SSCC can access them.

Module 1: Foundation	What is SSCC? Why is it important? The concept of 'Contract communications': what it is and why it's important. The role of personal responsibility. The pressure of safety vs performance and why time for SSCC is important.
Module 2: Protocols 1	The mechanics of communications (including the effect of tone and body language). A model for communications: the ABC-P concept. Using the phonetic alphabet. How to speak about numbers clearly. How to speak about weights and measures – also what are the exceptions and why.
Module 3: Structure and lead responsibility	A model for structuring communications: opening, information, actions, confirmation. Understanding the concept of lead responsibility. Why personal responsibility matters.
Module 4: Protocols 2	Understanding and using standard words and phrases. How to make an emergency call. The formality of SSCC. How equipment issues can impact on understanding each other.
Module 5: Confirming understanding	Communication barriers and how to overcome them. The importance of repeating back messages and how to do so clearly. Understanding the use of questioning and how to question effectively. What active listening is, how can it fail and what to do to help.
Module 6: Communication skills	Working with other people as part of a team, and how this impacts on SSCC. What is assertiveness, how do you use it and when should you use it? The importance of challenging in SSCC to achieve clarity. How to consider the needs of others and why this is important.

If all staff on the operational railway were to follow the best practice highlighted in this training course, we would all be working to a minimum but much higher standard of SSCC. This would help us come to a clear understanding, regardless of our employer or role. This would reduce the likelihood of errors being made in SSCC, which could reduce the likelihood of an operational incident or near miss.

The research that led to this training course was then used to update the content of the rail industry standard (RIS) on SSCC. RIS-8046-TOM, *Spoken Safety Critical Communications*, which was reissued in September 2019 to reflect the relevant information from the training manual: Appendix A of the RIS contains the "Guiding principles for effective SSCC" which is based on the training manual which accompanies the modules. The RIS has also updated the requirements, including requiring organisations to identify staff that use SSCC and train them appropriately.

These updates to the RIS should help to establish a more effective way to manage and improve SSCC across the whole industry. Training front-line staff can improve the consistency of SSCC across the network which, in turn, will lead to clearer and more effective SSCC. This is essential to delivering a safe railway; and ultimately, we hope that implementing the changes could help reduce the number of incidents and accidents that have communications as a contributing factor.

Find out more

Training

You can download all or part of the SSCC training materials, including:

- The learning pack (PowerPoint presentations with a voiceover)
- Briefing notes (to accompany the PowerPoint presentations)
- The manual (an overview of all the content available as part of the training materials)
- Communications Review Group e-learning (guide for staff who report into communications review groups)

Simply go to www.sparkrail.org, login with your work email, and search for T1078.

Standard

To access RIS-8046-TOM, *Spoken Safety Critical Communications*, search for 8046 on the RSSB website or your Rule Book app.

From the Regulator

The Office of Rail and Road (ORR) is the rail industry's independent economic and safety regulator. It is an independent body which is accountable to Parliament. ORR works with companies, safety bodies and devolved governments to keep an eye on health and safety performance on the network, including spoken safety critical communications (SSCC). ***Keith Shepherd, HM Principal Inspector of Railways*** *tells Right Track what ORR hopes for the future of SSCC.*

We continue to be concerned at the number of incidents where SSCC has been a contributory factor. We recognise that a lot of work has been done within the industry to address this. But our challenge to industry is to gain a better understanding of the current level of competence in SSCC, and to take the industry forward and improve all SSCC to an acceptable standard. When all areas of industry come together to focus on a specific issue, we can address it from more angles; and this gives us a better chance of reducing the risk. We would support SSCC becoming a certificated competency on a renewable cycle, similar to personal track safety.

RSSB Project T1078 developed training materials to be used by the industry to achieve a minimum national standard of SSCC (see pages 14-15). We would encourage all duty holders and contractors to use it when training and briefing their own staff on SSCC, so that there is a minimum standard across industry that everyone follows. This would help operations staff when they communicate with one another, especially across different employers and organisations.

However, until the industry fully understands the current situation of SSCC on the network, it will be difficult to measure its effectiveness and how it could be further improved. We would encourage industry to come together to develop a strategy and key performance indicators around SSCC that can be applied across all areas of the network, so that we're all singing from the same hymn sheet. We can then better understand what is working well and where we need to improve.

This would include capturing information from local groups, such as the Communication Review Groups, which analyse SSCC on their own routes. If we share this information at a national level, through RSSB's Train Accident Risk Group, it can then be analysed. Once we know where the issues are, the industry can start putting in place plans to improve SSCC across the network, reducing the risk of incidents and keeping our colleagues and passengers safe.

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