RISSB
RAIL INDUSTRY SAFETY AND STANDARDS BOARD

Safety Critical Communications

Code of Practice

This Rail Industry Safety and Standards Board (RISSB) product has been developed using input from rail experts from across the Rail Industry. RISSB wishes to acknowledge the positive contribution of all subject matter experts and development group representatives who participated in the development of this product.

The RISSB Development Group for this Code of Practice consisted of representatives from the following organisations:

ARTC	Queensland Rail	Aurizon
PTA WA	Sydney Trains	Yarra Trams
NSW Trainlink	Metro Trains	V/Line
Suburban Rail Loop Authority	ARC Infrastructure	Sydney Metro
Public Transport Victoria		

Development of this Code of Practice was undertaken in accordance with RISSB's accredited processes. It was approved by the Development Group, endorsed by the Standing Committee, and approved for publication by the RISSB Board.

I commend this Code of Practice to the Australasian rail industry as it represents industry good practice and has been developed through a rigorous process.

Deb Spring
Exec. Chair / CEO
Rail Industry Safety and Standards Board

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1 Introduction

1.1 Purpose

Safety critical communications are communications that, if not delivered , received, and understood correctly, could result in death, serious injury or incur significant damage to property, infrastructure, or the environment.

This Code of Practice (CoP) provides principles and practices for the transmission of safety critical communications on the Australian railway network, including all heavy and light rail operations.

Additionally, this CoP provides a reference for common terms and phraseology to promote harmonisation across all heavy and light rail networks.

The practices in this CoP are applicable to all entities working in the Australian rail industry. This includes all rail transport operators, contractors, and any third parties whose personnel engage in safety critical communications.

This CoP complements the Australian National Rule 2007 – Network communication and should be read in conjunction with that rule.

1.2 Scope

The scope includes all safety critical communications used to manage the safe operation of the railway. These forms of communication include:

a) face-to-face, verbally or through hand signals;
b) radio;
c) telephone;
d) written, including electronic (e.g., documents containing safety critical information);
e) any other safety critical communications.

This CoP seeks to ensure that all users recognise that the practice of effective communications covers a wide range of areas including:

f) emergency communications, including to external emergency services;
g) all 'Safeworking' communications between rail safety workers relating to but not limited to:
    i. rail traffic operations;
    ii. work in the rail corridor (e.g., track works).
h) shift change handover information;
i) worksite briefings containing safety critical information (e.g., worksite protection arrangements / limits);
j) safety critical communications equipment and systems.

1.3 Use of safety critical communication protocols

The rationale for using safety critical communication protocols is that it assists rail safety workers to maintain consistency in communication, regardless of whether the communication is safety critical or not.

This CoP can be used as a risk control through encouraging the use of common communication methodology and aids in minimising errors and miscommunication.

It is recommended the principles for effective communication contained in this CoP are adapted for all communications, whether safety critical or not. This means people become accustomed to using effective communication principles and will be better prepared for doing so in stressful or emergency situations.

1.4 Defined terms and abbreviations

Generic rail industry terms and definitions are provided in the RISSB Glossary https://www.rissb.com.au/products/glossary/

safety critical communications

communications that, if not delivered or not delivered accurately or promptly, could result in death, serious injury or incur significant damage to property, infrastructure or the environment

protection officer

competent worker responsible for managing the safeworking component of worksite protection

The Macquarie Dictionary definition applies where terms are not defined within the RISSB Glossary or above.

1.5 References

1.5.1 Normative

The following documents are referenced in the body of this CoP in such a way that some of the content forms requirements for the CoP:

a) AS 7660 Radio communication in the rail corridor

b) Australian National Rules and Procedures – 2003 Handsignals and verbal commands

c) Australian Harmonised Network Rule – 2007 Network communication

d) Australian Government Unit of Competency *TLIF 0008 Apply safety critical communications in the rail environment*

2 Safety critical communications

Safety critical communications are an integral part of the safe and efficient operation of rail networks around Australia.

The goal of the Australian rail industry is for rail traffic to move safely, efficiently, and effectively within and between networks whilst ensuring the protection of all rail personnel, passengers and members of the public.

Effective communication forms part of good working practices and systems. This is particularly important where people:

a) need to communicate with each other across different geographic locations;

b) need to be responsive to changing risks within the operating railway network; and

c) where the consequences of a communication error can be substantial.

Safety critical communication is considered part of non-technical skills development and a competency area that can be developed, trained and assessed.

In general, there are four aspects in relation to effective communication.

d) Messages are clear, short, and meaningful.

e) Language and terminology used is appropriate for receiver (e.g., protection officer vs a member of emergency services).

f) Receivers confirm understanding of the message.

g) Calls end with both parties clear on information provided.

Formal, structured communication supports the minimisation of errors and provides a framework that helps to build a shared understanding between senders and receivers.

Several incident investigations[1] and a National Rail Safety Report[2] have highlighted ineffective communication as contributing to railway accidents, incidents, and the effectiveness of the emergency response. The focus on improving the quality, consistency, and accuracy of communication practices across key safety critical roles is imperative to preventing these types of errors or incidents.

There can be variations in how safety critical communications are managed across network boundaries which rail safety workers have to navigate. Harmonisation of safety critical communication protocols within the Australian railway network can help reduce incidents through all rail safety workers using the same protocols, regardless of the geographical location.

[1] Various ATSB investigations available at https://www.atsb.gov.au/publications/safety-investigation-reports/?mode=Rail
[2] Office of the National Rail Safety Regulator, Rail Safety Report 2019-2020, p.65

3 Safety critical communication protocols

3.1 General

A key strategy to assist in mitigating communication error risks is for rail transport organisations to establish standard safety critical communication protocols. The structure should include processes for the following aspects as a minimum:

a) Communication fundamentals (see section 3.2).
b) Emergency communications.
c) Lead communicator.
d) Standard language/terms.
e) Use of phonetic alphabet.
f) Use of spoken numbers.
g) Written communications.
h) Avoiding use of vernacular or non-standard phraseology.

3.2 Fundamental principles

Fundamental principles are critical to effective communications. The following fundamental principles shall be applied to all safety critical communications:

a) Plan what you intend to say.
b) Minimise use of irrelevant information.
c) Provide accurate, brief, and clear messages.
d) Use the phonetic alphabet, spoken numbers and 24-hour clock when required.
e) Give messages in short complete sentences – use standard phrases.
f) Pronounce each word clearly.
g) Speak slightly louder than in normal conversation but avoid shouting (particularly when using a radio).
h) Use common technical terms used in the industry.
i) Where practicable, avoid the use of acronyms and words with alternative meanings, such as the word ‘Right’, or an affirmative word for a negative response, such as ‘No, OK’.
j) Use ‘active’ language. For example: ‘Ensure that you call Train Control’ rather than ‘Train Control must be contacted’. In the second instance, it is not stated who must carry out the action.
k) Ensure that the message has been understood. If a message is not understood, ask that the sender repeat the message or ask questions to clarify the message.

Rail safety workers should not:

a) use redundancies and slang such as ‘like’ ‘y’know,’ ‘er’, ‘yeah-nah’ and ‘um’;
b) interrupt or speak over the other party;
c) unnecessarily repeat information;
d) rush or slur words.

3.3 External communications

During emergency/incident situations it may be necessary for rail safety workers to communicate with personnel external to the rail industry, for example with emergency services, passengers or members of the public.

Many of the principles contained in this CoP will still apply, i.e., clear, concise messages passed in a timely manner. It is important that in these situations railway jargon is not used. When communicating with members of the public rail safety workers should use plain English and avoid the use of the phonetic alphabet unless it is necessary.

3.4 Responsibilities

3.4.1 General responsibilities

All of those involved in safety critical communications have responsibilities and accountabilities to ensure that all communications are effective, and protocols are correctly followed.

Further, senior management commitment through leadership is needed to promote strong safety values and strategies for all aspects of safety critical communication.

Rail transport operators shall ensure everyone involved in safety critical communication has clearly defined roles, responsibilities, and accountabilities, including managerial staff. Recommended roles and responsibilities are detailed in Appendix A.

3.4.2 Lead communicator

All parties to safety critical communications have a responsibility to communicate in a manner that is both professional and focused on safety.

Rail transport organisations should also consider identifying the requirement to nominate a lead communicator in their safety critical communications protocols. The lead communicator's role is to demonstrate leadership during safety critical communications through:

a) asking questions to ensure all the information is available at hand to make an informed decision on the correct course of action;

b) maintaining and encouraging a calm and composed disposition for all parties, recognising and managing any distress, agitation or stress that might impact the effectiveness of the communication;

c) concluding the conversation appropriately by summarising and/or ensuring the other party is clear about what is required; and

d) challenging ineffective communication styles and prompting the other party to use the correct communication protocols.

The lead communicator is typically the person who initiates the conversation. However, in certain circumstances it may be necessary for another person to take the lead in communications such as in an emergency. Rail transport organisations may define and clarify the lead communicator role for specific situations.

3.5 Standard terms

3.5.1 General

It is important that messages are clearly understood by all parties undertaking safety critical communications. The use of standard terms and language reduces the likelihood of misunderstandings as to the meaning of a message or term.

All rail transport organisations should develop a list of standard terms to use when communicating safety critical information. Communications should be routinely audited to identify the use of non-standard terms.

A list of recommended standard terms and abbreviations is provided in Appendices B and C.

3.5.2 Phonetic alphabet

The phonetic alphabet is used to assist communicators effectively transmit information such as rail traffic identification. The phonetic alphabet can also be used when it is difficult to understand what a person is saying, for example if they are in a noisy place, they are softly spoken or have a strong accent, or the connection is poor.

The phonetic alphabet shall be used:

a) to identify letters of the alphabet;

b) to spell words and place names that are difficult to say, or may be misunderstood;

c) where spoken communication is not understood or able to be heard clearly; and/or

d) when quoting the identity of rail traffic designations, signals, or points.

Rail safety workers should use the phonetic alphabet in other situations where it is not possible to clearly articulate the message.

Numbers can also be misinterpreted, for this reason there is a guide to pronouncing numbers 1-10 (including the pronunciation for zero). These are termed phonetic numbers.

The correct pronunciation of the phonetic alphabet and numbers is provided in Appendix D.

4 Types of safety critical communication

4.1 Verbal communications

4.1.1 Standard procedure

The following procedure should be adopted and used as a minimum when sending and receiving verbal safety critical communications.

Start Communication	
Sender	When using open-channel radios (except in an emergency) check the channel is not in use before starting communication. Start the communication by stating the intended receiver and then identifying the sender using the applicable name / control board name / rail traffic identification, role and location (if required). Operators of rail mounted vehicles should include the receiver's vehicle unit number or rail service number. Communications from a worksite must include the sender's name, safeworking competency, track access number (or equivalent identifier if applicable), and location. A short identification may be used, after making an initial positive identification. See Appendix E.
Receiver	Acknowledge the communication promptly (when safe to do so) by identifying who the communication is from and then the receiver.
Exchange Information	
Sender and Receiver	Communicate messages by: • acknowledging the communication promptly (when safe to do so) by identifying who the communication is from and then the receiver; • providing key information relevant to the task ; • giving accurate, brief and clear messages; • using standard terms; • using phonetic alphabet where relevant; • using spoken numbers where relevant; • using 24-hour clock to convey times; • avoiding use of slang and jargon; and • finishing each communication with 'Over' (radio only) Acknowledge messages by: • listening to the information being provided; and • asking questions to clarify understanding. Ask questions to ensure all relevant information is gained.
Receiver	Readback all safety critical information to ensure correct transmission and understanding
Sender	Confirm readback information is correct. If there are errors or misunderstandings, state the errors, provide correct information and ensure it is repeated back correctly Prompt receiver to repeat back key information (if required)

Finish Communication	
Sender and Receiver	Finish the communication using the following protocol: • Only conclude the communication when both parties have an agreed understanding of the message • Obtain contact details, including phone number (if required) • Complete final communication with 'Out' (radio only)

Senders and receivers should use active listening techniques as described in Section 5.3.

4.1.2 Emergency procedure

An emergency is any event requiring immediate or urgent action. In emergency situations it is critical that information is transmitted clearly and concisely to assist in a rapid response.

Emergency transmissions typically occur between network control officers and rail safety workers, such as rail traffic crews or protection officers. Emergency communications take precedent over all other communications.

The transmission of an emergency communication shall include:

a) use of the term 'Emergency emergency emergency';
b) the name or identification of the intended receiver;
c) the specific information that needs to be conveyed, including;
   i. rail service and/or location details; and
   ii. reason for the emergency call.
d) a request for acknowledgement by the receiver e.g., 'Acknowledge immediately, over'.

The receiver shall acknowledge the transmission and repeat back all critical information to ensure understanding. If the transmission includes an instruction the receiver shall advise the sender when the action has been completed e.g., 'Network control, driver of train 1234. Train at complete stop'.

If an emergency communication is not clearly received or understood the sender shall use all possible means to establish contact with the receiver and make the communication understood. This may include repeating the message, rewording the message or using alternate means of communication (e.g., mobile phone/radio) to ensure understanding.

4.2 Written communications

Written communication is a mode of transmission of safety critical information between one person to another. Documentation conveying safety critical information includes those relating to shift handover, safeworking, speed restrictions, conditions affecting the network and/or worksite protection briefings i.e., safety information that is time critical, needs to be acted upon and is relevant to the current work being or about to be undertaken.

All rail transport organisations should have in place procedures and processes for ensuring safety critical documentation is sourced, relevant to the worker receiving the information and provided to workers (including rail traffic crew) in a timely manner.

For the purpose of this CoP written communication includes handwritten, typed, and electronically created forms of communication.

The primary benefits of written documents are:

a) provision of a written record that can be referenced and re-referenced as required;

b) reduced likelihood of miscommunication.

Other benefits of written documentation include:

c) provision of background history;

d) preservation of knowledge and learning;

e) provides legally valid evidence;

f) allowing work to be planned;

g) assists in ensuring consistency of activities and operational processes.

All rail transport organisations should have in place procedures and processes for documentation that, as a minimum, requires:

h) information to be relevant to the worker receiving the information;

i) information to be provided in a timely manner;

j) completion of all required items on the form and items not required to be clearly identified – not simply left 'blank';

k) completion using permanent ink;

l) numbers to be written in numerals, not words, using for example "12" instead of "twelve";

m) where an error is made a single line is drawn through errors and corrections initialled, or compilation of a new form;

n) completion in a printed manner (block letters), not cursive;

o) for design to be appropriate for the intended usage e.g., safety critical information is clearly identifiable; and

p) where practicable, written records to be typed/electronic format to reduce errors associated with handwriting.

4.3 Handsignals

An important form, and the first form of safety critical communications used in railways, is the handsignal. Although this CoP is primarily focussed on verbal/audible communications systems, the hand-signal process should not be overlooked.

All rail transport organisations should have in place clear procedures for the use of hand-signals on their networks. These procedures should be aligned with ANRP 2003 to avoid the risk of handsignals being misinterpreted between different railway networks.

4.4 Electronic communications

This section addresses safety critical communications received through electronic means, such as text messages, applications, and other means of electronically transmitting text.

Safety critical communications shall only be transmitted electronically when the details of that message can be recorded. Those details should include:

a) date and time of the transmission;
b) sender and receiver of the transmission;
c) contents of the message;
d) date and time the message was received.

Electronically transmitted safety critical communications shall be confirmed by the receiver as being correctly received and understood. This confirmation shall be recorded.

Confirmation may be received by the originating sender by:

e) electronic confirmation;
f) verbal confirmation.

Where electronic communications are unreliable, or confirmation cannot be clearly received all parties shall revert to verbal and written communications.

4.5 Work on track communications

It is important that safety critical communication is transmitted accurately and effectively to all rail safety workers, not just between the network control officer and the protection officer.

When arranging worksite protection, it is important that safety critical communications are transmitted accurately and effectively between the network control officer and the protection officer, and with other parties where applicable, for example with hand signallers.

Further, there are added complexities with large worksites where there can be multiple, independent worksites operating within the larger worksite, such as when a Local Possession Authority is introduced. It is critical that the protection information is accurately transmitted to all other protection officers and safeworking personnel (lookouts, etc).

Communications on worksites are not usually recorded, as they often use local radios or mobile phones. This presents difficulties in auditing and where investigations are required. Rail safety workers who transmit and receive safety critical communication should record all safety critical information on forms designed for this purpose. These forms should be collected once used and audited as per Section 7 for written communications.

4.6 Handover of safety critical information

At shift handover it is important that rail safety workers effectively transfer safety critical information from the outgoing worker to the incoming worker. Failure to provide this information has been found to be a contributor in many incidents, where the incoming worker was unaware of a situation or occurrence that they should have been made aware of.

For effective handovers rail transport organisations should consider:

a) developing procedures for effective handover of safety critical information;
b) scheduling sufficient time between shifts to allow effective handovers;

c) provision of a suitable environment for conducting handovers (avoiding disruptions during handovers);

d) developing a method of recording the information that is provided during a handover;

e) auditing the effectiveness of the handover process;

f) review the effectiveness of the handover process if deficiencies are found in incident investigation.

5 Barriers to effective communications

5.1 General

Many factors can lead to ineffective communication resulting in missing or inaccurate information and misunderstandings. All rail safety workers should be aware of barriers to effective communications and make all reasonable efforts to address those barriers where possible.

Barriers to effective communications will vary between rail transport organisations, and specific locations based on the environment that the rail safety workers are in. For example, barriers in a network control room will be different to those in a remote location.

Rail transport organisations should consider what barriers apply in the different environments that rail safety workers communicate in and provide means to reduce the effects of those barriers in line with so far as is reasonably practical (SFAIRP) principles.

A list of barriers to effective communications can be found in Appendix F.

5.2 The authority gradient

The authority gradient refers to the established, and/or perceived, command and decision-making power hierarchy in a team, crew, or group situation, and how balanced the distribution of this power is experienced within the team, crew or group.

A ‘steep’ authority gradient is one in which the ‘leader’ holds a position well above other team members (in terms of actual or perceived power). The leader is clearly in charge, tells others what to do and does not encourage the team to contribute. The leader is viewed as dominant and dictatorial, and it can therefore be difficult for subordinate staff to express concerns, question decisions or even clarify instructions. This can pose a barrier to team involvement and problem solving and can pose safety risks if critical communications and concerns are not received.

A ‘flat’ authority gradient on the other hand, is where the leader is barely distinguishable from others in the team and are equal in apparent status and authority. The leader involves the whole team in decision making (regardless of their experience). This is also a risk as decision making can be slow and may not be appropriately based on experience.

The ideal authority gradient is between these two extremes. The leader is in charge but works effectively with their team members (e.g., consulting them and asking for their ideas). Ideally, it is fluid, becoming steeper or flatter depending on the circumstances.

Authority gradients have previously been identified as a cause of ineffective communication. It is important that rail safety workers understand their responsibility to question advice from another party, and to always ask for clarification or to ask for a direction to be repeated

It is important that appropriate and comprehensive pre-task briefings are held to clarify roles, responsibilities, capabilities, limitations, and boundaries, both in normal and abnormal conditions. These may need to be reinforced during briefings in relation to unusual or exceptional situations such as emergencies or where high-risk tasks are to be carried out.

5.3 Active listening

One of the factors that can result in breakdowns of safety critical communication is the listener failing to pay appropriate attention to the person conveying the message. This is often due to distractions, other conversations occurring at the same time, or attempting to do multiple things at once.

Active listening is a communication technique that can be used to improve a person's skills at listening to communications being directed to them. It requires that the listener fully concentrate, understand, respond, and then remember what is being said. By learning active listening skills, personnel involved in the safety critical communication processes will become better listeners and actually hear what the other party to the communication is saying — not just what they think they are saying.

Active listening is essential in ensuring the communication process is completed correctly and ensures that the person sending the message knows the recipient has received, understood and acted appropriately to the message being sent. This is particularly important during the readback process when the listener needs to carefully check that the receiver of the message is repeating back correct information.

There are a range of benefits to be achieved from active listening:

a) The receiver of the message will take in more information and understand better. This will make it more likely to result in a correct response being provided. The communication process will be less likely to fail due to error or misunderstanding;

b) Other people will more likely respond with the same level of attentiveness when the receiver is in turn transmitting a response message;

c) Persons communicating will react more positively to the message recipient as they will be seen to be taking the message seriously and giving it appropriate importance and respect;

d) Safety is improved as the effort put into the active listening process will reduce the risk of any communication errors occurring.

Steps that may be taken to improve active listening are provided in Appendix G.

5.4 Questioning technique

Various techniques can be used to ascertain whether safety critical information has been fully received and understood. It is important that the right technique is used dependant on the situation, as using the wrong technique can result in the sender assuming that the receiver has properly understood the message.

A common method is the use of either open or closed questions. Closed questions can typically be answered with a simple yes or no. This is useful when the subject of discussion is very simple and requires no explanation, such as "Are you in the danger zone?" Open questions require the receiver to provide a more detailed response which can help the sender understand how much the receiver understood, such as "What area of the corridor are you standing in?".

Leading questions should be avoided where possible. This method of questioning leads the receiver to the answer, rather than asking them to think about it. A leading question could be "You're clear of the danger zone, aren't you?" The risk is that the receiver answers the question the way they think the sender wants them to which could be inaccurate.

6 Recruitment, training and assessment

6.1 Recruitment and selection processes

Communication skills are the skills needed to use spoken and/or written language to interact with others. The primary skills are reading, writing, listening, and speaking. These skills enable people to share information, ideas, and feelings and to transfer meaning among themselves. These factors are the essence of effective communication.

All organisations should have a recruitment and selection process that tests verbal and written safety critical communications skills based on the role requirements, as requirements may vary between rail safety worker roles. This should include the use of recognised best practices in pre-employment assessment techniques.

Organisations should also establish a regular review of recruitment and selection criteria that includes minimum requirements for plain English regardless of native/non-native English communicators.

6.2 Training

All rail safety workers shall receive training in the safety critical communications protocols that the rail transport organisation has in place for safety critical communications. Training shall focus on the technical aspects (use of key phrases or the phonetic alphabet, compliance with procedures, etc) and on the non-technical aspects of effective safety critical communication, including the principles identified below. Following initial classroom and theory training on-the-job training shall also be undertaken for practice and to reinforce learning. Ongoing training should be provided to rail safety workers in safety critical roles.

Training shall meet the requirements of the National Unit of Competency TLIF 0008.

In addition to the requirements within TLIF 0008 training and competence assessment processes should include the following features in the combination most suited to the rail transport organisation's operations and business:

a) The safety critical communications protocols contained at the appendices to this CoP of Practice and any local rail transport organisation supporting procedures.

b) Specific training on the barriers to effective communications and the importance of handling situations involving the authority gradient.

c) The conduct of practical exercises, such as role play or simulation, to give practice and feedback in a non-stressful situation and enable errors to be corrected in a low-risk environment. This should be done with trainees in separate rooms so that facial expression and body language forms no part of the communication.

d) Use the actual communications equipment that will be used so that correct operation of equipment can be practised, and staff can become familiar with any specific features of the systems.

e) Enable practice in the safety critical communication protocol(s) that is to be used for the types of equipment expected to be used.

f) Where practicable, be delivered as joint training so that members of different work roles can practice communicating with each other.

g) Review and examine case studies of actual incidents where poor safety critical communications have caused or been a causal factor in serious incidents.;

h) Case studies of actual incidents where best practice safety critical communications have been used and prevented a near miss or safeworking incident.

i) Encourage self-evaluation and establish peer review processes to assist personnel to monitor their own and others' safety critical communication performance.

Where practicable rail transport organisations should make the training available to its contractor(s), rolling stock operators and other rail industry participants interfacing with the rail transport organisation and who may be required to carry out safety critical communication processes.

6.3 Assessment

Rail transport organisations shall have suitable and relevant systems to gather, assess, record, and disseminate information on personnel and organisation performance with respect to safety critical communications. This process should gather the necessary evidence to adequately assess the performance of the personnel in the safety critical communications they undertake.

Additionally, the process should include trainer performance assessments to ensure adequacy and consistency of the assessment process. The trainers' performance is critical in ensuring that all rail safety workers apply safety critical communications correctly in their roles.

It is important that a practical assessment is carried out, to ensure the trainee can effectively communicate safety critical information in an effective manner. This assessment shall include the requirements of the National Unit of Competency TLIF 0008.

Assessment systems shall include feedback processes to provide for the outcome of assessments to be made available for review by respective line managers and/or assessors and the personnel who have been assessed, in order to drive an improvement in learning and communication culture. The emphasis of the assessment system should be on assisting personnel to make improvement in their verbal and written communication practices.

Ongoing training and mentoring should be made available to rail safety workers and line managers to help improve safety critical communication performance.

6.4 Recurrent training and assessment

Rail transport organisations shall have a documented system for refresher training and other periodic assessments. Rail transport organisations should utilise a risk-based approach to determine the period between refresher training sessions, and refresher training and other periodic assessments, which may vary depending on the type of communications the individual is carrying out.

Periodic assessment should not exceed 24 months and may need to be conducted more frequently for personnel considered to be in safety critical roles.

Rail transport organisations should seek evidence to understand the rate at which skills associated with safety critical communication tasks decay and should use this evidence to inform the frequency of refresher training and periodic assessment. Skills that are evidenced to decay rapidly, and that are regarded as having high importance due to their impact on safety outcomes, should be considered with priority for skills maintenance.

Further information on assessing skill decay is provided in Appendix H.

7 Auditing, reviewing and recording communications

7.1 Auditing

7.1.1 General

Auditing is a key function for all rail safety critical functions/processes, including safety critical communications . All rail transport organisations shall have an auditing schedule developed for their rail activities and this schedule must be risk based.

The broader audit process should be varied and with a mix of formal and informal processes carried out by the organisation's auditing team. The audit should also seek to identify areas requiring improvement for individual operators as well as common areas requiring improvement across the board, as well as identify excellent communication for individuals and across the board.

The auditing team may consist of rail safety workers, rail safety professionals (where appointed) and members of management i.e., experienced, and competent personnel who have knowledge of the technical component of safety critical communications, as well as safety critical communications and management processes.

It is important that rail transport organisations do not focus entirely on compliance with policies and procedures when conducting audits as this can develop into a compliance culture within the organisation. A compliance culture can result in people using safety critical communications focusing only on compliance with agreed processes (e.g., use of phonetic alphabet), leading to a lack of focus on the transmission of accurate and factual information. Audits should review the quality of the information being transmitted, as well as the protocols used to transmit that information.

Reviews of safety critical communications performance may also be considered following any reports of non-compliances with standard protocols or because of audits of safety critical communication practices identifying shortcomings in the practices.

Line management personnel that are close to and/or involved with the safety critical communication process may use checklists or inspection forms designed specifically for this purpose. Such tools should be more focussed on the technical and non-technical aspects of effective communication, and as a minimum, consider looking at such aspects as:

a) completeness and accuracy of communications;
b) style of language being used (i.e., brief and accurate or rambling);
c) formality and professionalism of the safety critical communications ;
d) messages are 'read-back';
e) misunderstandings are identified and effectively recovered from;
f) where necessary clarification about a safety critical communication is sought;
g) use of phonetic alphabet, spoken numbers and safety critical communications protocols;
h) minimisation of general conversation during safety critical communications;
i) avoidance of interruption and/or distraction;

j) avoidance of unnecessary fill terms such as ‘like’, ‘um’, ‘er’ and y’know; and

k) where documentation is being completed, that the writing is legible, printed, and correct.

7.1.2 Areas of focus

Rail transport organisations shall provide appropriate guidance for auditors to assist them in auditing safety critical communications. .

Auditing procedures should include:

a) review of use of correct safety critical communications protocols;

b) recording the details of safety critical communication being reviewed, including time, date and persons involved;

c) review of the accuracy information being transmitted;

d) recording of good and poor examples of safety critical communications.

7.2 Reviewing communications

As part of any safety critical communications review rail safety workers, rail safety professionals and managers should examine and discuss any findings that could be used to improve safety critical communications. The review should identify correct and incorrect protocols with the aim to improve the rail transport organisation policies, procedures, training, and mentoring.

7.3 Recording of Communications

All rail transport organisations should have processes in place for recording of safety critical communications.

When developing a recording systems rail transport organisations shall ensure that the system is suitable for recording and retention of safety critical communications. Systems suitability should consider:

a) the type of media to record to;

b) duration of retention, particularly given aspects such as training, audits, incidents etc.;

c) accessibility of the recordings i.e., security and disclosure risks;

d) what will be recorded and where i.e., radio only, telephones, Train Control etc.;

e) any ‘non-recorded’ devices that may be considered for use in safety critical communications;

f) any potential ‘privacy’ concerns and brevity of conversations;

g) any regulatory requirements for the recording and storage of safety critical communications.

An often-overlooked aspect in relation to any recording media that must be kept for extended periods (i.e., years) is the need to ensure that that the specialist items for accessing the recordings is also maintained. This includes such items as the device to play the recording, or the software to decode the recording. Alternatively, consideration needs to be given to transcripts or other methods of preservation, noting that transcripts do not accurately reflect any emotion or other inflection that may be heard in the original recording.

7.4 Safety critical communications equipment

All rail transport organisations shall have procedures and processes to ensure that equipment used for safety critical communications is:

a) routinely tested;

b) operated correctly in accordance with the manufacturer's instructions e.g., environmental aspects such as temperature/humidity parameters, vibration etc.;

c) adequately maintained in accordance with the manufacturer's instructions;

d) where applicable, is accompanied with a full set of charged backup batteries or spare non-rechargeable batteries are available; and

e) where practical, equipment should be checked and tested for its intended operation at the commencement of each shift.

Radio equipment used for safety critical communications shall comply with AS 7660.

Appendix A Roles and responsibilities

The following are generic responsibilities applicable in all organisations. Note that in all organisations there may be further items that require to be added.

A.1 Rail transport organisations

Executive and senior managers within rail transport organisations have a responsibility to:

a) provide the policies and procedures that enable rail safety workers to meet the requirements of this CoP;

b) encourage and drive a culture of best practice in safety critical communications within the organisation;

c) provide training and competence management to rail safety workers in safety critical communications practices.

A.2 Managers

All managers have responsibility to:

a) ensure that safety critical communications performance is checked, monitored, and reported;

b) talk face-to-face with the workforce about safety critical communication concerns, behaviours, and performance;

c) ensure adequate resources and training are in place to achieve effective safety critical communication practices;

d) take action to address safety critical communication concerns and poor practices;

e) recognise and reward effective safety critical communication practices and performance;

f) provide suitable and appropriately maintained communication equipment.

A.3 Superintendents / Supervisors / Work Group Leaders

All Supervisors have responsibility to:

a) check that the team fully understands and complies with safety critical communication protocols;

b) encourage team members to speak up about safety critical communication issues;

c) coach and mentor the team to improve safety critical communication protocols;

d) address ineffective safety critical communication practices fairly, firmly and consistently;

e) recognise and reinforce effective practices in the team;

f) initiate discussions with the team about safety critical communications practices.

A.4 All personnel engaged in communications

All personnel who are required to undertake safety critical communication processes have a responsibility to ensure that they:

a) learn and follow the safety critical communication protocols;

b) report communication issues and any conditions that impede effective safety critical communication;

c) give support and advice to team members to improve safety critical communication practices; and

d) participate in discussions and investigations to improve safety critical communication practices.

A.5 Safety and compliance personnel

Personnel engaged in safety and compliance roles e.g., safety management roles, auditors etc. have responsibilities also in relation to safety critical communications. They are uniquely placed, in conjunction with line management roles, to conduct and/or assist with carrying out such functions as:

a) preventative inspection/assurance activities;

b) adopting an educational role e.g., toolbox topics, coaching and mentoring;

c) raising awareness e.g., safety alerts;

d) audits of safety critical communications;

e) assessing adequacy of safety critical communication management systems e.g., application of risk assessment tools; and

f) analysing the role of safety critical communication in incident investigations and their potential for causing/exacerbating human errors.

Appendix B Standard terms

B.1 Standard communication terms

The standard terms in the table below shall be used to convey the associated meanings:

Term	Meaning
Emergency, Emergency, Emergency	This is an emergency
Correct	Yes. You are right
I read back	I am going to repeat all, or part, of your statement exactly as I received it
I say again	I am going to repeat all, or part of my last statement
I spell	I am going to use the phonetic alphabet
Loud and clear	Your signal is strong, and every word is understood
Message received	I clearly received and understand your message
Negative	No. Not correct
Out	My transmission is complete
Over	I have finished speaking, I am waiting for a reply
Read back	Repeat all, or a specified part, of my message back to me exactly as you received it
Receiving	I acknowledge your call. Proceed with the message
Roger	All your last statement is received and understood
Say again	Please repeat your last statement
Speak slower	Repeat what you said, speaking more slowly. It is hard to understand you
Standby	Wait. I will be back soon

B.2 Standard operational terms

Term	Meaning
Stop	Do not proceed / continue
Caution	Proceed at caution
Clear	Not foul or obstructing a defined area
Blocking facilities applied	Blocks have been placed preventing signals clearing over a section or sections of track, or points prevented from moving
Cancel	To end previously authorised activities, such as Occupancy Authorities, without completing them.

B.3 Standard signal descriptors

Term	Meaning
Stop	Signal is displaying a red aspect
Caution	Signal is showing a restricted aspect
Clear	Signal is showing a green aspect
Blackout	Signal is not displaying any indication

Appendix C Written communication abbreviations

The following abbreviations shall be used in written safeworking communications.

Abbreviation	Meaning
BF	blocking facility
CAN	Condition Affecting the Network
hr	hours (time of day by 24hr clock)
km	kilometre
L/Xing	level crossing
LPA	Local Possession Authority
Loco	locomotive
metro	metropolitan
min	minutes
No.	number
TOA	Track Occupancy Authority
TWA	Track Work Authority
ASB	Absolute Signal Block
TO	Train Order

Rail transport organisations may develop additional abbreviations applicable to their operational requirements.

Appendix D Phonetic alphabet and numbers

For Digit	Letter Name	Say	For Digit	Letter Name	Say
A	ALFA	AL-fah	**N**	NOVEMBER	No-VEM-ber
B	BRAVO	BRAH-voh	**O**	OSCAR	OSS-cah
C	CHARLIE	CHAR-lee	**P**	PAPA	Pah-PAH
D	DELTA	DELL-tah	**Q**	QUEBEC	Keh-BECK
E	ECHO	ECK-oh	**R**	ROMEO	ROW-me-oh
F	FOXTROT	FOKS-trot	**S**	SIERRA	See-AIR-rah
G	GOLF	GOLF	**T**	TANGO	TANG-go
H	HOTEL	hoh-TEL	**U**	UNIFORM	YOU-nee-form
I	INDIA	IN-dee-ah	**V**	VICTOR	VIC-tah
J	JULIETT	JEW-lee-ETT	**W**	WHISKEY	WISS-key
K	KILO	KEY-loh	**X**	X-RAY	ECKS-ray
L	LIMA	LEE-mah	**Y**	YANKEE	YANG-key
M	MIKE	MIKE	**Z**	ZULU	ZOO-loo

Table D:1 Phonetic alphabet

Number	Letter Name	Say
0	Zero	ZEE-RO
1	One	WUN
2	Two	TOO
3	Three	TREE
4	Four	FOW-ER
5	Five	FIFE
6	Six	SIX
7	Seven	SEV-EN
8	Eight	AIT
9	Nine	NIN-ER
.	Decimal point	DAY-SEE-MAL

Table D:2 Phonetic numbers

Appendix E Use of short identification

Short identification is the use of an abbreviated term to identify the people in a conversation, rather than using the full identification at the commencement of each transmission. This is used in open channel radio communications to simplify conversations, particularly when the full identification is long or unwieldy to use.

Short identification does not apply to closed channel communications such as telephone calls as it is clear who the parties in the call are (once the initial identification has been confirmed).

Short identification involves using only part of the receiver's or transmitter's standard identification. For example, at the commencement of a conversation between a Network Control Officer and a Protection Officer could start with:

- Network Control Main South C, this is Protection Officer Gang 306 at the 45 kilometre on the Oaklands branch

The response would be:

- Protection Officer Gang 306 at the 45 kilometre on the Oaklands branch, this is Network Control Main South C

Once this positive identification has been confirmed the remainder of the conversation could shorten the identification to 'Protection Officer Gang 3-0-6' and 'Main South C'.

Short identification shall only be used in the following situations:

a) Where full identification has already been established.

b) In shunting yards, where the driver and the shunter are operating on a channel exclusively for their use.

c) For safety critical communications other than shunting, when the communication remains between the original people, is unbroken (continuous) and does not introduce additional personnel.

Rail transport organisation's may develop their own requirements for the use of short identification.

Appendix F Barriers to effective communication

Common barriers to safe, effective communication include, but are not limited to:

a) inattention;
b) expectation bias;
c) poorly expressed information;
d) inconsequential / unrelated conversation;
e) language / accents;
f) personal bias and/or prejudice;
g) voice volume and inflection;
h) pace of speaking;
i) competing priorities;
j) fatigue;
k) stress;
l) environment – background noise;
m) quality of communications equipment;
n) equipment failure;
o) radio/DTRS static;
p) ambient noise;
q) failure to read back or repeat information;
r) misunderstood hand and bell signals.

Appendix G Steps to better active listening

There are specific steps that help people become better active listeners. They include the following:

a) Make the conscious effort to listen and concentrate on the person giving the communication.

b) Ensure there are no distractions and manage other tasks so due attention can be given to the person delivering the communication i.e., stop other tasks you may be doing and focus on the communication.

c) Try and put yourself in the speaker's situation so you can understand their intent.

d) Observe the speaker's vocal inflection, enthusiasm or lack of it, and style of delivery. These are essential components of the message. If speaking face-to-face, pay attention to the speaker's facial expressions and other nonverbal cues for more insight into the message.

e) Listen without interruption. Note key phrases to remember the speaker's message content.

f) Write down any key points, as necessary.

g) Ask questions to clarify any areas of uncertainty.

h) Repeat back the message word for word if a short message or use paraphrasing if it is a longer or more general message to confirm the message has been correctly received as intended.

i) Finally, provide acknowledgment, either verbally or by action, that the message has been understood.

Appendix H Skill decay

Skills and tasks that could be difficult to recall or susceptible to skill decay include tasks that:

a) do not have a job aid or memory aid (or an aid that does not provide adequate information to operators, so they can complete the task with minimal or no error);

b) have many steps;

c) are performed infrequently (including tasks only used in degraded mode working);

d) do not need to be performed in a sequence (or that require some steps to be performed in a sequence);

e) do not have built in logic or cues - to help the operator know what to do next;

f) require complex judgment or decision making (juggling multiple options, that are detailed or technical in nature, and/or with incomplete information);

g) require the operator to have many facts, terms, names, rules etc. in their memory to perform the task;

h) have 'difficult to meet' time requirements for successful completion.

i) Other factors that can also contribute to skill decay include poor work practices or inadequate training.

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