Rail Delivery Group

📚 National Rail

RDG Guidance Note: Developing Train Driving Policies Aligned with Non-technical Skills

RDG-OPS-GN-019 Issue 3 – October 2020



About this document

Explanatory Note

The Rail Delivery Group is not a regulatory body and compliance with Guidance Notes or Approved Codes of Practice is not mandatory; they reflect good practice and are advisory only. Users are recommended to evaluate the guidance against their own arrangements in a structured and systematic way, noting that parts of the guidance may not be appropriate to their operations. It is recommended that this process of evaluation and any subsequent decision to adopt (or not adopt) elements of the guidance should be documented. Compliance with any or all of the contents herein, is entirely at an organisation's own discretion.

Other Guidance Notes or Approved Codes of Practice are available on the Rail Delivery Group (RDG) website.

Executive Summary:

This document provides guidance on integrating Non-technical Skills (NTS) into operators' Train Driving Policies.

Issue Record

Issues 1 to 2 of this document were published as: GN019.

Issue	Date	Comments
1	November 2013	First industry release.
2	April 2016	Periodic update
3	October 2020	Major re-write to increase references to ORR guidance and RSSB's Integration Guide.

This document is reviewed on a regular 3-year cycle.

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1 Purpose and Background

1.1 Purpose

To provide guidance to Railway Undertakings on developing Train Driving Policies integrated with Non-technical Skills. This guidance is aimed at operational standards practitioners and may be used when creating, reviewing or updating Train Driving Policies. The document introduces Non-technical Skills and provides good practice examples on how they can be incorporated into policies as well as training and assessment processes, where appropriate.

This document is to be read alongside the following:

- A Good Practice Guide to Integrating Non-Technical Skills into Rail Safety Critical Roles (RSSB) referred to as 'RSSB GPG' in this document.
- Developing and Maintaining Staff Competence (ORR)

A list of further references / reading material is available in Section 5 (References).

1.2 Background

The Rail Industry Skills Forum commissioned an RSSB research project (T869) which defined the Non-technical Skills required for the Train Driver role and how they could be incorporated into training courses and other competence management activities for front line staff and their managers.

Since completion of the project, the RSSB continue to create material to support operators, including an Integration Guide (mentioned above) and regular courses – for information can be found here: https://www.rssb.co.uk/en/Learn-and-Connect/Training/NTS-Awareness-and-Integration.

In this document, a Train Driving Policy, sometimes known as a Professional Driving Policy, is assumed to encompass lifestyle, etiquette and non-Rule Book related train driving protocols.

2 Non-technical Skills

2.1 What are Non-technical Skills?

Non-technical Skills (NTS) are generic skills that underpin and enhance technical tasks, for example – setting up a train cab and driving routes. Whilst Technical Skills describe what someone should do, the Non-technical Skills describe how they should do it. For example, dispatching a train from a station requires Technical Skills to complete safety checks (checking the Platform-Train Interface, providing the correct signals, operating controls etc.) but this also involves Non-technical Skills such as 'maintain concentration', being "systematic and thorough" and 'checking'. These Non-technical Skills help staff take in information, determine what is means, take decisions, communicate with others and take action. As such, NTS play a vital role in safety by helping people better understand and improve their own performance. The full list of Non-technical Skills is shown in <u>Appendix A</u>.

2.2 Why are Non-technical Skills Important?

Reviews of incidents and accidents in the industry have shown consistently shown that where NTS are lacking, the ability to prevent and mitigate errors is compromised and so contributes to the incident taking place. NTS have been a key focus in other safety-critical industries for many years. By taking a proactive approach to NTS development and integrating them into competence management systems and training programmes it is expected that task performance and therefore safety will improve.

For more information on the benefits of NTS - see RSSB GPG Section 1.2.

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2.3 Identifying the Non-technical Skills

When creating a Train Driving Policy, it is important to properly understand what the person should be doing (Technical Skill), what they need to know (Underlying Knowledge) and how they should do it to achieve a positive outcome (Non-technical Skill).

The Task Analysis technique can be used to start developing the policy as it can help:

- 1. Gather information on the role and individual tasks;
- 2. Break down into series of detailed subtasks; and,
- 3. Identify relevant underlying knowledge, Technical Skills, Non-technical Skills, and observable examples.

There are several techniques available to identify relevant Underlying Knowledge, Technical Skills and Non-technical Skills:

- Task Analysis (as mentioned above):
 - Think of all the tasks a person is required to carry out; what underlying knowledge, technical skills and Non-technical Skills are needed to do these in a safe and effective way?
- Repertory Grid Technique:
 - Think of high a performing member of your team what is the difference in terms of underlying knowledge, technical skills and Non-technical Skills that makes them higher performing?
- Critical Incident Technique:
 - Think of a critical situation (e.g. near-miss whilst approaching a signal at danger); what underlying knowledge, technical skills and Non-technical Skills made it a success/failure?

The table below can be used to illustrate the information gathered.

Goal / Sequence	Task	Underlying Knowledge and Technical skill	Non-technical Skill(s)
What is the person trying to achieve?	What must the person do to achieve the goal? What are the specific steps the person must undertake to complete the task?	The underlying knowledge and technical skills required to perform the task correctly.	Skills required for successful completion that are not technical.

Further information on identifying Non-technical Skills can be found in the RSSB GPG Section 3.

Also, the RSSB's Risk Based Training Needs Analysis for Train Drivers (<u>https://www.rssb.co.uk/Learn-and-Connect/Training/Risk-Based-Training-Needs-Analysis</u>) can also be used to determine tasks, underlying knowledge, technical skills and Non-technical Skills. It can also be used to prioritise these to inform training and competence management activity.

3 Incorporating Non-technical Skills

3.1 Sections of a Train Driving Policy

Train Driving Policies are generally divided into Core Sections which are designed to broadly reflect a day in the life of a Train Driver. Reflecting the sequence of events during an average day is a more natural way of presenting the information and hence it is more likely to be studied or referenced by Drivers. Using the Task Analysis technique above, the 'Goal / Sequence' and 'Tasks' can be used to create the 'Core Sections' and 'Topic Areas' within the Train Driving Policy – see table below.

The information on Underpinning Knowledge, Technical Skill and Non-technical Skill(s) can be

incorporated into the Core Sections and Topic Areas so that Train Drivers understand the knowledge and skills they need to develop and demonstrate for each section of the Train Driving Policy. This is set out in <u>Section 3.2</u>.

Core Section	Topic Areas (Examples)
Non-technical Skills	What are Non-technical Skills?
	How are they incorporated into this Train Driving Policy?
Lifestyle and presentation	Personal lifestyle
	Fatigue
	Personal preparation
	Professional preparation
	Reporting for Duty
Starting off	Preparing for movement
	Starting a train
	Shunting
On the move	Train handling (inc. eco driving)
	Defensive driving
	Attaching/detaching
Rest breaks	Personal Needs Breaks
Out of course running	Seasonal considerations
	Diversion
	Degraded working
	Emergency situations
End of duty	Security and disposing of train

It is recommended that each topic is designed as a chapter within the Train Driving Policy and is colour-coded for ease of reference and illustrated accordingly. Following the structure highlighted below could help to ensure consistency in information provision.

Picture / Illustration	Why?
A visual representation of the topic.	Why is it important to understand and carry out the instructions and guidance?
What?	How?
Bullet points with instructions or guidance, including relevant Technical Skills and Underlying Knowledge.	Non-technical Skill(s) and behaviours relevant to the topic with advice and tips.

3.2 Train Driving Policies Integrated with Non-technical Skills

The table below illustrates how Non-technical Skills could be integrated into Train Driving Policy Core Sections highlighted in section above.

The items included in the table below is an example for Railway Undertakings to consider for their structure of Train Driving Policies. Certain elements will not be applicable to some Railway Undertakings. The list is not exhaustive.

Core Section	Topic Areas	Underlying Knowledge and Technical skill (Example)	Non-technical Skill(s) (Example)
Non-technical Skills	N/A	N/A	N/A
Purpose	N/A	N/A	N/A
Scope	N/A	N/A	N/A
Lifestyle and	Personal lifestyle		1 - Situational awareness
presentation	Fatigue		- 1.1 Attention to detail
	Personal preparation		 1.4 Retain information (during shift)
	Professional preparation	Maintain CMS competencies	2 - Conscientiousness
		Maintain professional development	- 2.1 Systematic & thorough approach
		Maintain personal appearance	- 2.2 Checking
		Display professional behaviours	- 2.3 Positive
	Reporting for Duty	Confirm attendance	7 - Self-management
		Sign on duty	- 7.1 Motivation
		Update relevant operational information	- 7.2 Confidence and initiative
		Identify allocation of duties	- 7.3 Maintain and develop skills and knowledge
			- 7.4 Prepared and organised
Starting off	Preparing for movement	Locate rolling stock	1 - Situational awareness
		Comply with safety practices (Personal	- 1.1 Attention to detail
		Protective Equipment, walking routes etc.)	- 1.4 Anticipation of risk
			- 1.5 Anticipation of risk
			2 - Conscientiousness
			- 2.1 Systematic & thorough approach
			- 2.2 Checking
			3 - Communication
			- 3.1 Listening
			- 3.4 Sharing information
			4 - Decision making and action4.3 Diagnosing and solving problems
			7 - Self-management
			7.4 Prepared and organised
	Starting a train	Start train / commission the cab / open the	1 - Situational awareness
		desk	- 1.1 Attention to detail
		Conduct internal / external checks	- 1.4 Anticipation of risk
		Relieve another driver	- 1.5 Anticipation of risk
		Operate cab controls	2 - Conscientiousness
	Shunting	Identify the controller of the shunting	- 2.1 Systematic & thorough approach
	Chanting	movement	- 2.2 Checking
			3 - Communication

	Determine extent of movement Obtain movement authority Check shunting route is clear of obstructions Respond to shunting signals and indications Drive train from other than the leading cab Drive train towards a limit of shunt or signal Perform propelling movements Identify incorrect route setting Use Carriage Washing Machines Enter shed/buildings	 3.1 Listening 3.4 Sharing information 4 - Decision making and action 4.3 Diagnosing and solving problems 7 - Self-management 7.4 Prepared and organised 1 - Situational awareness 1.1 Attention to detail 1.2 Overall awareness 1.3 Maintain concentration 1.4 Retain information 1.5 Anticipation of risk 2 - Conscientiousness 2.1 Systematic and thorough approach 2.2 Checking 2.3 Positive attitude towards rules and procedures 3 - Communication 3.1 Listening 3.2 Clarity 3.3 Assertiveness 3.4 Sharing information 4.1 Effective decisions 4.2 Timely decisions 4.2 Decision and an exhibition procedures
Train handling (inc. eco driving)	Monitor safe working of the train Monitor train safety systems Acknowledge warning system indications Accelerate train Brake Train Comply with signal aspects and lineside signage or in-cab signalling Bring train to a stand Stop train at station Stop train at signal Enter occupied platforms Obtain authority for movement Identify other train movements Transition between signalling systems Proceed over level crossings	 4.3 Diagnosing and solving problems 1 - Situational awareness 1.1 Attention to detail 1.2 Overall awareness 1.3 Maintain concentration 1.4 Retain information 1.5 Anticipation of risk 2 - Conscientiousness 2.1 Systematic & thorough approach 2.2 Checking 2.3 Positive attitude towards rules and procedures 3 - Communication 3.1 Listening 3.2 Clarity 3.3 Assertiveness 3.4 Sharing information

			 4 - Decision making and action 4.1 Effective decision making 4.2 Timely decisions 4.3 Diagnosing and solving problems
On the move	Defensive driving	Apply economic driving techniques Maintain the operating schedule	 1 - Situational awareness 1.2 Overall awareness 1.3 Maintain concentration 1.5 Anticipation of risk 2 - Conscientiousness 2.1 Systematic & thorough approach 2.3 Positive attitude towards rules and procedures 4 - Decision making and action 4.1 Effective decision making 4.2 Timely decisions 7 - Self-management 7.1 Motivation
	Attaching / detaching	Stop train at required distance Obtain authority to couple / uncouple Couple / uncouple mechanically Couple / uncouple electrically Close cab controls	 1 - Situational awareness 1.1 Attention to detail 1.2 Overall awareness 1.3 Maintain concentration 1.4 Retain information 1.5 Anticipation of risk 2 - Conscientiousness 2.1 Systematic and thorough approach 2.2 Checking 2.3 Positive attitude towards rules and procedures 3 - Communication 3.1 Listening (people not stimuli) 3.2 Clarity 3.4 Sharing information 4.1 Effective decisions 4.2 Timely decisions 6 - Workload management 6.1 Multi-tasking and selective attention
Rest breaks	Personal Needs Breaks	Considerations for next turn	 1 - Situational awareness 1.5 Anticipation of risk 2 - Conscientiousness 2.3 Positive attitude towards rules and procedures 7 - Self-management

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			 7.1 Motivation 7.2 Confidence and initiative 7.3 Maintain and develop skills and knowledge 7.4 Prepared and organised
Out of course running	Seasonal considerations	Respond to low railhead adhesion Driver train through flood water / snow	 1 - Situational awareness 1.1 Attention to detail 1.2 Overall awareness 1.3 Maintain concentration 1.5 Anticipation of risk 2 - Conscientiousness 2.1 Systematic and thorough approach 2.2 Checking 3 - Communication 3.4 Sharing Information 4 - Decision making and action 4.1 Effective decisions 4.2 Timely decisions 4.3 Diagnosing and solving problems 6 - Workload management 6.3 Calm under pressure 7 - Self-management 7.2 Confidence and initiative
	Diversion	Use planned diversion Use unplanned diversion	 1 - 1 - Situational awareness 1.1 Attention to detail 1.2 Overall awareness 1.3 Maintain concentration 1.5 Anticipation of risk 2 - Conscientiousness 2.1 Systematic and thorough approach 2.2 Checking 3 - Communication 3.4 Sharing Information 4 - Decision making and action 4.1 Effective decisions 4.2 Timely decisions 4.3 Diagnosing and solving problems 6 - Workload management 6.3 Calm under pressure 7 - Self-management 7.2 Confidence and initiative

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Degraded work	ing Pass a signal at danger without authority Perform Wrong Direction Movements Perform un-signalled moves Comply with Temporary Block Working / Single Line Working / Possession arrangements	 1 - Situational awareness 1.2 Overall awareness 1.4 Retain information 1.5 Anticipation of risk 2 - Conscientiousness 2.1 Systematic and thorough approach 2.2 Checking 2.3 Positive attitude to rules and procedures 3 - Communication 3.1 Listening 3.2 Clarity 3.3 Assertiveness 3.4 Sharing information 4.1 Effective decisions 4.2 Timely decisions 4.3 Diagnosing and solving problems 5 - Cooperation and working with others 5.1 Considering others needs 5.2 Supporting others 5.3 Treating others with respect 5.4 Dealing with conflict/aggressive behaviour 6.2 Prioritising 6.3 Calm under pressure 7 - Self-management 7.2 Confidence and initiative
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	Emergency situations	Respond to Near Miss Incident Conduct controlled / emergency evacuation Respond to station overrun / stop short / fail to call Dealing with train accident / collision / derailment React to fire on train Respond to accidental train diversion Respond to passenger emergency Respond to obstruction on the line	 1 - Situational awareness 1.2 Overall awareness 1.4 Retain information 1.5 Anticipation of risk 2 - Conscientiousness 2.1 Systematic and thorough approach 2.2 Checking 2.3 Positive attitude to rules and procedures 3 - Communication 3.1 Listening 3.2 Clarity 3.3 Assertiveness 3.4 Sharing information 4 - Decision making and action 4.1 Effective decisions 4.2 Timely decisions 4.3 Diagnosing and solving problems 5 - Cooperation and working with others 5.1 Considering others needs 5.2 Supporting others 5.3 Treating others with respect 5.4 Dealing with conflict/aggressive behaviour 6.1 Multi-tasking and selective attention 6.2 Prioritising 6.3 Calm under pressure
End of duty	Security and disposing of train	Relief by another Driver	7.2 Confidence and initiative 1 - Situational awareness
		Decommission cab Berth train	 Stuational awareness 1.1 Attention to detail Conscientiousness 2.1 Systematic & thorough approach 2.2 Checking Communication 3.4 Sharing information Cooperation and working with others 5.1 Considering others' needs 5.2 Supporting others

4 Reviewing Train Driving Policies

Arrangements should be in place for reviewing the on-going effectiveness of policies, in particular, ensuring that where Railway Undertakings' operations overlap, individual company policies complement those of neighbouring Railway Undertakings.

Post-incident reviews should be considered when reviewing the effectiveness of the driving policies. Railway Undertakings should notify other Railway Undertakings of risks or areas of weakness identified in policies during post-incident review. This will ensure good practice is shared and lessons learned result in a continuous improvement cycle.

The RSSB GPG sets out guidance for reviewing integration of Non-technical Skills.

5 References

RSSB: RS100: Good Practice Guide on Competence Development https://catalogues.rssb.co.uk/rgs/standards/RS100%20Iss%201.pdf

RSSB: Non-Technical Skills: Information Leaflet <u>http://www.rssb.co.uk/SPR/Documents/NTS%20Leaflet%20-%20Single%20Pages.pdf</u>

RSSB: Non-Technical Skills: Introduction http://www.rssb.co.uk/EXPERTISE/HF/Pages/NON-TECHNICALSKILLS.aspx

RSSB: A Good Practice Guide to Integrating Non-Technical Skills into Rail Safety Critical Roles – *referred to as 'RSSB GPG' in this document.* <u>https://www.rssb.co.uk/-</u>/media/Project/RSSB/Platform/Documents/Affiliate/Affiliate/content/Improving-Safety-and-Health/2020-non-technical-skills-integration-good-practice-guide.pdf

RSSB: Non-technical skills required in train driver role (RSSB Research Project T869) <u>https://www.rssb.co.uk/-/media/Project/RSSB/Platform/Documents/Member/Member-</u> <u>content/Improving-Safety-and-Health/2012-guidance-non-technical-skills.pdf</u>

RSSB: A summary guide to integrating NTS into rail safety critical roles. <u>https://www.rssb.co.uk/-/media/Project/RSSB/Platform/Documents/Affiliate/Affiliate-content/Improving-Safety-and-Health/2020-non-technical-skills-implementation-summary-guide.pdf</u>

ORR: Developing and Maintaining Staff Competence <u>https://orr.gov.uk/___data/assets/pdf_file/0016/4264/developing-and-maintaining-staff-competence-rsp1.pdf</u>

RSSB: Driver Training Review (RSSB Research Project T1016): <u>https://catalogues.rssb.co.uk/research-development-and-innovation/research-project-</u> catalogue/t1016

RSSB: The Underload Toolbox: <u>https://www.rssb.co.uk/en/Standards-and-Safety/Improving-Safety-Health--Wellbeing/Understanding-Human-Factors/The-underload-toolbox</u>

RSSB: Risk-Based Training Needs Analysis (RBTNA): <u>https://www.rssb.co.uk/en/Standards-and-Safety/Tools--Resources/Human-Factors-Toolkit/Risk-based-training-needs-analysis--RBTNA</u>

Appendix A: List of Non-technical Skills

Cat. No.	NTS Category	NTS skills	Description and examples
1	Situational awareness	1.1 Attention to detail	Pays attention to the details required to carry out a task and/ or understand a situation, understands why these details are important and can identify anomalies in a complex situation.
		1.2 Overall awareness	Develops and maintains an accurate understanding of what is happening by regularly assessing the current situation, location and environment, and balancing attention between specific tasks and an overall perspective of the situation.
		1.3 Maintain concentration	Consistently maintains concentration and levels of performance for a period of time by actively controlling distractions in a calm and proficient manner and remaining alert.
		1.4 Retain information (during shift)	Recalls relevant information for a task or situation using memory aids, where required, to avoid forgetting important information.
		1.5 Anticipation of risk	Anticipates the hazards, risks and errors that could occur in a given situation and shows heightened alertness and vigilance when approaching known hazards.
2	Conscientiousness	2.1 Systematic and thorough approach	Performs tasks in an organised, systematic, logical and unhurried way.
		2.2 Checking	Checks information and does not make assumptions, can explain why checking and reviewing is important and applies self-checking techniques and strategies.
		2.3 Positive attitude towards rules and procedures	Understands rationale for rules and procedures and correctly applies formal rules and procedures. Will take action if others do not adhere to rules and procedures correctly.
3	Communication	3.1 Listening (people not stimuli)	Listens to others, understands information and responds appropriately.
		3.2 Clarity	Provides clear and concise communication during normal, degraded and emergency situations. For example, does not use local terminology or jargon and can clearly explain complex issues and situations.
		3.3 Assertiveness	States point of view assertively and uses appropriate tone of voice for a situation. Will stand their ground on the basis of a sound assessment of the situation and will challenge others if they believe information is conflicting or incorrect, or if actions of others are inappropriate.
		3.4 Sharing information	Shares information that is relevant to customers and colleagues, with appropriate level of detail and at the appropriate time. Reports and records hazards as required.

4	Decision making and action	4.1 Effective decisions	Collects and analyses relevant information before making decisions. Considers consequences of decisions, compares available options and then acts with certainty once a decision is made, taking responsibility for their actions.
		4.2 Timely decisions	Makes decisions and takes associated actions at the right time, instinctively carrying out urgent actions.
		4.3 Diagnosing and solving problems	Reviews what could have caused a problem and is able to identify specific system faults or failures. Can recognise when a situation requires a non-standard solution and finds appropriate solutions. Will use all resources available to handle a problem/situation effectively.
5	Cooperation and working with others	5.1 Considering others' needs	Takes into account others' views, needs and priorities when making decisions and taking action. As part of this, will discuss options and consequences with others.
		5.2 Supporting others	Works cooperatively with others, stopping to help others when possible.
		5.3 Treating others with respect	Treats others with respect regardless of their culture, age, background etc. Is polite in verbal communications and uses non-verbal communications appropriately.
		5.4 Dealing with conflict/aggressive behaviour	Reduces conflict where possible, can recognise inappropriate behaviour, takes action, and will call for assistance when required.
6	Workload management	6.1 Multi-tasking and selective attention	Switches attention between sources of information when required and performs different tasks in parallel when safe to do so.
		6.2 Prioritising	Prioritises when under pressure, identifying the most crucial information and tasks. Will review and reprioritise based on changes to a situation.
		6.3 Calm under pressure	Maintains control of emotions in a stressful situation and is able to maintain performance under pressure.
7	Self-Management	7.1 Motivation	Willing and motivated to do the job as well as possible.
		7.2 Confidence and initiative	Works autonomously and makes decisions and takes responsibility as required. Is able to delegate and has an accurate level of confidence in own ability, e.g. does not work on tasks or in situations that exceed their level of competence.
		7.3 Maintain and develop skills and knowledge	Builds and maintains own knowledge of rules / procedures and is keen to learn new tasks. For example, maintaining CPD, keeping up with notices and other information, and showing willingness to learn and do well at the job. Seeks and acts on feedback and is willing to review own performance to improve.
		7.4 Prepared and organisation	Is well prepared, organised and will, for example, read through all relevant information in advance of tasks.





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