

NORTH EAST LINE (NEL) SIGNAL PASSED AT DANGER (SPAD) INCIDENT ON 4 NOVEMBER 2023 - RAIIF 2025



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Planning & Head of Rail Risk

SBS Transit

About SBS Transit Rail

Our Purpose

Moving People in a **Safe**, Reliable and Sustainable Way

Our Values

-  Caring
-  Adaptable
-  Reliable
-  Eco-Friendly
-  **Safe**

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ISO CERTIFIED

SBS Transit

SBS TRANSIT RAIL PTE LTD

ISO 9001	Quality Management System
ISO 14001	Environmental Management System
ISO 22301	Business Continuity Management System
ISO 27001	Information Security Management System
ISO 37001	Anti Bribery Management System
ISO 44001	Collaborative Business Relationship Management System
ISO 45001	Occupational Health & Safety Management System
ISO 46001	Water Efficiency Management System
ISO 50001	Energy Management System
ISO 55001	Asset Management System

Opened 18 Jan 2003	Opened 20 Jun 2003	DTL 1 : 22 Dec 2013 DTL 2 : 27 Dec 2015 DTL 3 : 21 Oct 2017	JRL 1 : 2027 JRL 2 : 2028 JRL 3 : 2029
			
21.0 km route 29 stations - Total : 57 LRV 1 or 2 car configuration - Depot at Sengkang 	22 km long 17 stations - Total : 49 trains 6 car configuration - Depot at Sengkang 	41.9 km long 35 stations - Total : 92 trains 3 car configuration - Depot at Gali Batu & ECID 	24 km long 24 stations - Total : 62 trains 3 car configuration - Depot at Tengah 
Sengkang-Punggol Light Rail Transit	North East Line	Downtown Line	Jurong Region Line

10

SAFE HABITS

10

SEC

METRES

TAKE 10 SECONDS TO LOOK 10M ALL AROUND YOU AND TAKE NOTE OF THE 10 SAFE HABITS.

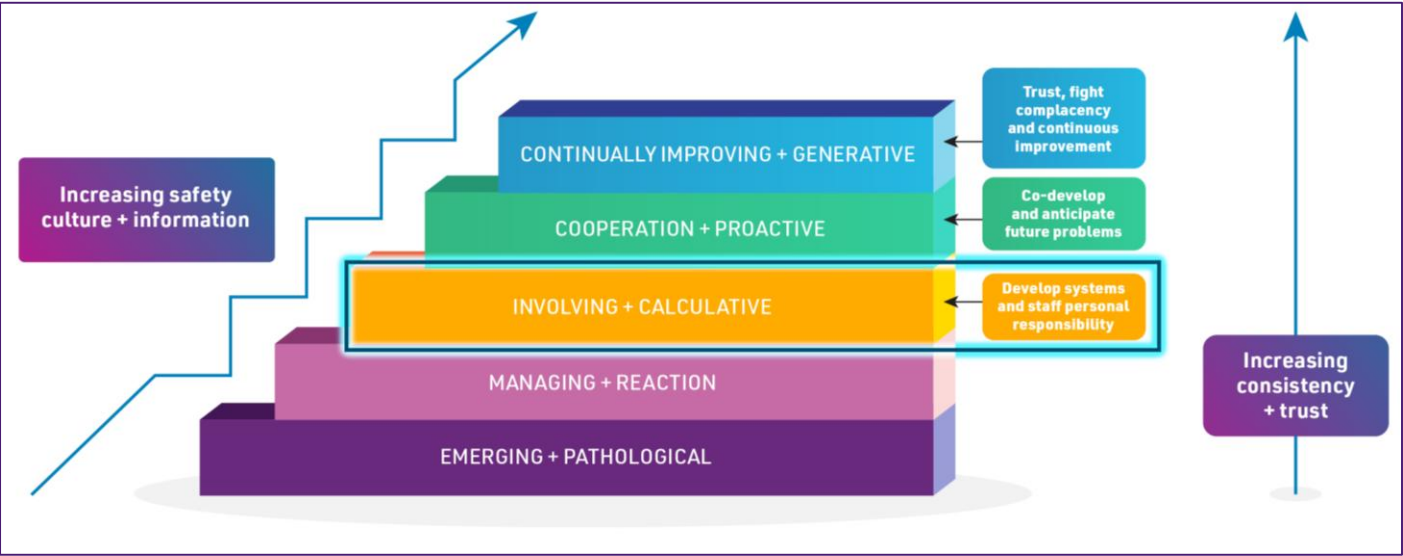
 S TOP WORK IF UNSAFE Halt any activity if it becomes unsafe and address the issue	 H EIGHTEN TEAM SAFETY Look out for your colleagues and ensure they are also following safety practices.
 A LWAYS FOLLOW THE CORRECT PROCEDURES Do not take shortcuts.	 A CTIVELY EMBRACE SAFETY RESPONSIBILITY Take personal responsibility for your safety and the safety of others.
 F OLLOW SAFETY RULES Adhere to established safety protocol throughout the workday.	 B E MINDFUL OF YOUR SURROUNDINGS Continuously stay aware of your environment to identify any potential hazards.
 E NSURE PROPER HOUSEKEEPING Maintain a clean and organised workspace to prevent accidents.	 I NCULCATE SELF-CHECK HABITS Conduct regular self-checks to ensure you are following safety practices.
 SCAN HERE FOR THE VIDEO	 SCAN HERE FOR THE POSTER

SEE SOMETHING, SAY SOMETHING
Report any unsafe conditions or behaviours immediately.

TOOLBOX BRIEFING BEFORE WORK
Start the day with a safety briefing to ensure everyone is aware of the tasks and potential hazards.

SBS Transit

Achieving the Gold Standard in Safety Culture

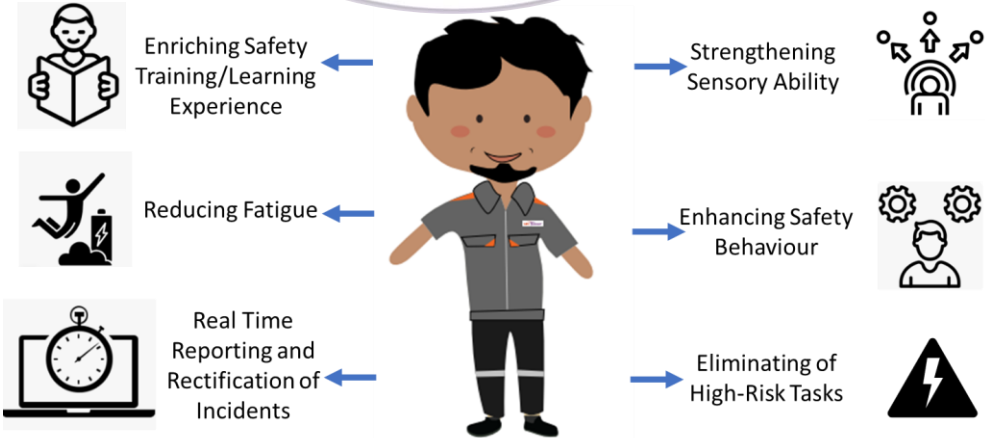


Our Target

The target for SBST Rail Safety Culture Plus Programme remains the Generative Phase (our “Gold Standard”)

Technology as a Key Enabler

Technology enables a safer workplace by enriching learning, reducing fatigue, enabling real-time incident response, enhancing hazard awareness, enhancing safe behaviours, and eliminating high-risk tasks



Case Study: NEL SPAD Incident (1/4)

When: 4th November 2023 / **Where:** Sengkang Depot Examination Building E1 Track to Headshunt H2 Track

Who: 29 years old Depot Driver (DD) with 3 years driving experience

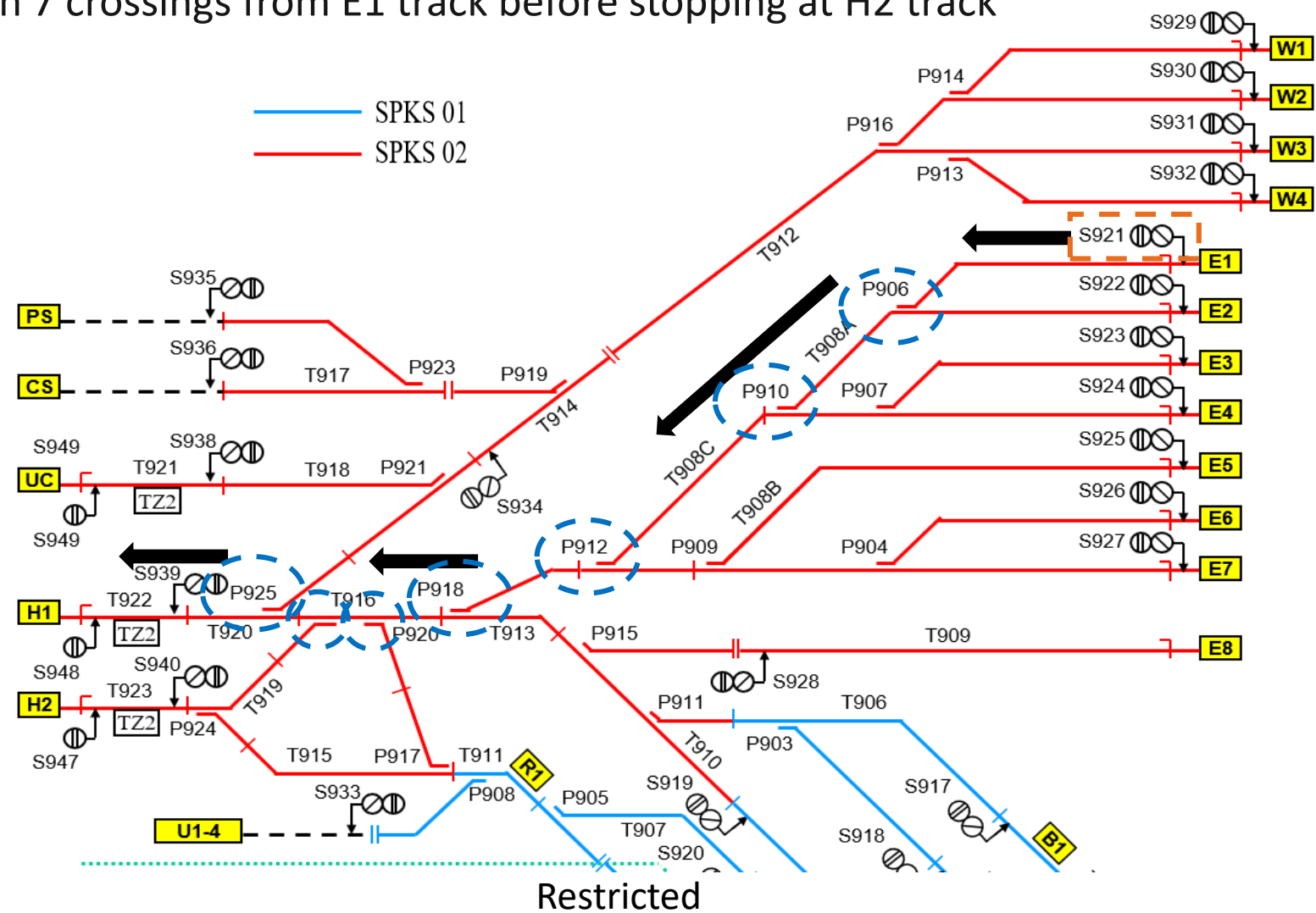
Sequence of Event:

Time	Event(s)
1801hrs	Shift Depot Supervisor (SDS) requested train T20 to be shunted from E1 track to buffer via H2 Track
1805hrs	DD and Ground Shunter (GS) performed checks on train and line clear in preparation for train movement
1821hrs	DD began Restricted Manual (RM) movement without authorisation from Depot Controller (DTC) after opening the Examination Building Train Access Gate; signal aspect in front (S921) was red
1824hrs	Train T20 arrived at H2 track; DD realised he did not seek authorisation from DTC for setting of route for his earlier RM movement
1830hrs	DD attempted to contact DTC via TETRA multiple times but there was no response
1835hrs	DD proceeded to inform SDS of unauthorised movement; SDS managed to contact DTC through Works Coordinator (WC)
1853hrs	DTC returned to his work console and discovered the unauthorised movement reflected on his GWS terminal; a total of 7 unauthorised crossings were made
1902hrs	Track Occupation Authorisation (TOA) was granted for DD to report to SDS office
1953 to 2115hrs	Signalling and Permanent Way staff conducted inspections for damages to the track and point machines caused by the unauthorised movement; no abnormalities found.
2151 to 2205hrs	Train T20 was shunted back to E1 track and Global GAMA was normalised by DTC

Case Study: NEL SPAD Incident (2/4)

Movement Path of Train T20

Train T20 passed through 7 crossings from E1 track before stopping at H2 track



Case Study: NEL SPAD Incident (3/4)

PEEPO Investigation Conducted

Investigation found the following basic cause and contributing factors:

Basic Cause	Details
Procedural Oversight	DD did not seek DTC authorisation and route set before opening the Examination Building Train Access Gate

Contributing Factors	Details
Faded Signage	The visual warning sign instructing DD to contact DTC before opening the Examination Building Train Access Gate had faded and was ineffective as a reminder
Distraction by Personal Mobile Device	DD placed a phone on the console, which may have distracted him despite no confirmed usage
Prolonged Absence of DTC	DTC was away from his console longer than expected without informing SDS, delaying response
Medication Influence	DD had taken Anarex, a medication known to cause drowsiness, which may have affected alertness



Faded signage



Case Study: NEL SPAD Incident (4/4)

Corrective and Preventive Actions (CAPA) Taken

The investigation team identified the following actions to be taken:

CAPA	Details
Automatic Gate Control and Monitoring System	Implemented system for DTC to remotely lock / unlock Examining Building Train Access Gates, utilising Engineering Control as a mean to prevent human errors

CAPA	Details
Improved Signage	Replaced faded signs with brighter, more prominent ones to reinforce safety reminders
Mobile Device Policy	Stipulated all personal gadgets to be kept away during train driving to prevent distractions
DTC Handover Protocol	DTC to ensure handing over of position to SDS or Traffic Controller (TC) before leaving, based on expected absence duration
Medication Influence	Issued circular reminding staff to report medication that may affect alertness and check for side effects with a doctor



Brighter, more prominent signage

Automatic Gate Control and Monitoring System

Key Capabilities

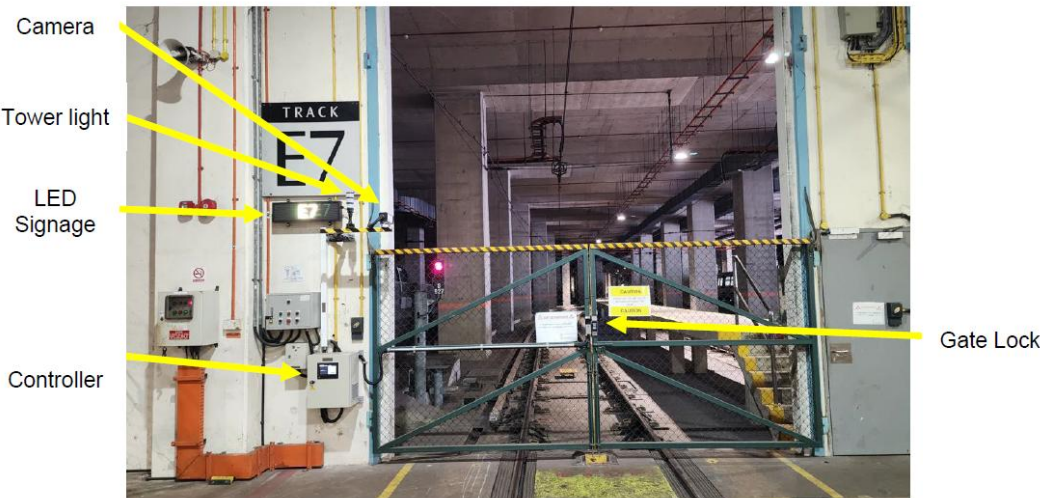
- Automated gate locking system ensures gates remain locked until amber signal detection confirms route setting, enabling safe manual release
- Integrated visual and audio alerts enhance track safety by warning personnel of train movements;
 - Includes a failsafe manual override via bypass key request from Shift Depot Supervisor during power or system failures

Status of Deployment

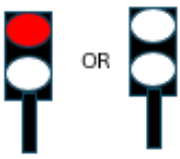
Handover Date

NEL – 18 Feb 2025

DTL – 28 Jul 2025



Restricted

Event	Gate and Lock Status with Visual and Audio Alerts		
 Detect no Amber Signal Light	Gate is closed and locked E7		No Tower Light
 Detect Amber Signal Light	Gate is closed and unlocked automatically OUTGOING		Automatically triggers Tower Light 'Blinking Green with Buzzer'
 Detect Amber Signal Light	Ground Shunter manually opens the gate OUTGOING		Automatically change Tower Light from 'Blinking Green with Buzzer' to 'Blinking Amber'
			Automatically triggers existing Hazard Warning Siren
 Outgoing train has moved out of the Examination Building.	Ground Shunter manually closes the gate, and it is locked automatically E7		Automatically change Tower Light from 'Blinking Amber' to no Light Automatically silences the existing Hazard Warning Siren

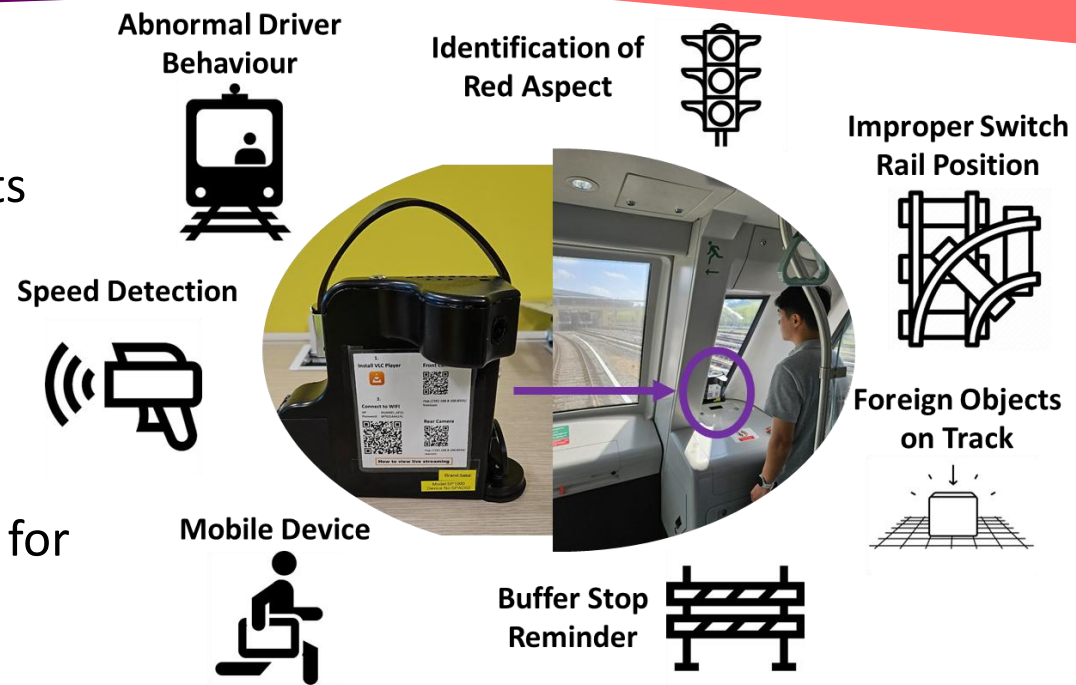
SPAD Prevention Tool - Advanced Video Analytics as Train Eyes (AVANTE) Project

Key Capabilities

Serving as an active safety companion, it provides audible alerts and transmits messages under predefined conditions, such as approaching signals, detecting driver drowsiness, and addressing speed limit breaches

Status of Deployment

Depot signal head mapping completed for NEL Depot, pending for NEL Mainline and DTL due to site-specific signal variations

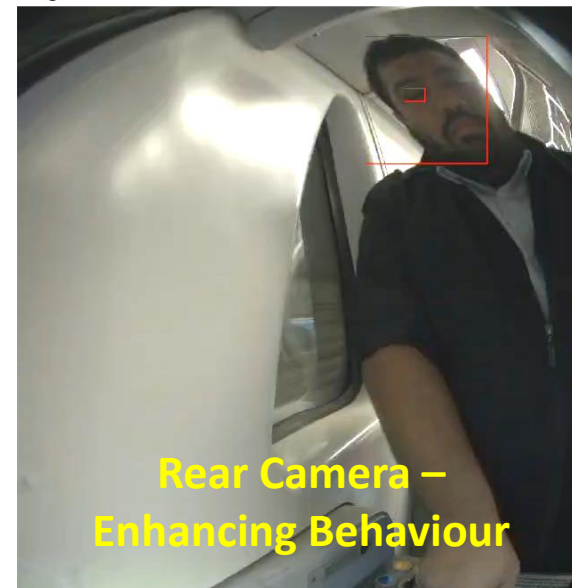


Front Camera – Strengthening Sensory Ability



Restricted

Rear Camera – Enhancing Behaviour





10-10-10 SAFE HABITS

THANK YOU!



Questions & Discussion:

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