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Zonegreen

SPAD Risk in Maintenance Depots

Signals passed at danger (SPAD) have long been a serious concern for the rail industry and have resulted in several high-profile accidents.

When two passenger trains collided in Salisbury in October last year, a major incident was declared by the emergency services and 15 people, including one of the drivers, were taken to hospital.

Preliminary findings by the Rail Accident Investigation Branch (RAIB) attributed the incident to the South Western Railway train involved in the crash passing through a stop signal, which occurred as a result of low adhesion between the wheels and the track.

In its 2019/20 report, the Rail Safety and Standards Board (RSSB) noted SPAD levels were at their highest since 2008. Perhaps surprisingly, empty coaching stock (ECS) make up almost 20% of SPADs nationally, despite accounting for just 4% of train

services, and in period ten of 2020, there was a spike, predominantly made up of ESC-related SPADs.

Reasons for ESC SPADs

Why do so many empty trains pass signals at danger? The RSSB Mitigating Against Empty Coaching Stock SPADs report 2021 found that 52% of all incidents were due to the driver failing to check the signal aspect. This was twice that of the next-biggest reason for ECS SPADs – a misread signal.

The explanations as to why drivers fail to check the signal aspect when operating ECS services are many and varied, but often they are the result of inattention, distraction or loss of concentration.

Further considerations highlighted by the RSSB report included the limited protection afforded to ECS movements by train protection warning systems at the signal.

Most ECS SPADs seem to happen during busy times for train

movements in and out of depots, yards and sidings – before and after the morning peak and again after the evening commute is over, when most passenger services stop and rolling stock returns to stabling.

Given that depots are less likely to have automated train protection systems, their infrastructure and the people who work within them are at significantly increased risk of harm from SPADs.

Protection and Prevention

There is no question that SPADs in rail depots can be catastrophic. A vehicle that fails to stop where it is intended could crash into the maintenance shed and plough into the path of unsuspecting staff.

Sheffield-based rail safety specialist, Zonegreen, is working with depot operators to limit the risk of SPADs through the implementation of its renowned Depot Personnel Protection System (DPPS).

The innovative technology manages the safe and effective movement of rail vehicles in and around depots. Network Rail-approved derailleurs are used to protect staff working inside maintenance depots, physically eliminating the risk posed by SPADs.

Zonegreen's derailleurs are controlled by intuitive Road End Panels situated adjacent to the depot doors with direct line of sight of the physical protection. Staff access the system using RFID tags which are programmed with various levels of authorisation. When someone has logged on to begin working on a road, the derailler is prevented from being lowered, physically protecting the road that is in use from train movements, even if a signal is passed at danger.

Christian Fletcher, Zonegreen's Technical Director, said: *"A lot of consideration has gone into the human factors involved in depot protection and this has enabled us to find ways to make DPPS easier to operate, actively avoiding error and leading to large productivity gains for our customers. Whilst DPPS cannot prevent SPADs from occurring, workers can carry out their duties confident that every possible step is being taken to protect them from serious harm."*

"Our research shows SPADs are a serious concern for depot operators, but we believe our technology has the potential to reduce the number of incidents occurring annually, particularly among ECS services."



For more information about DPPS or Zonegreen's range of depot protection equipment, telephone (0114) 230 0822 or visit www.zonegreen.co.uk.



WHAT'S THE COST OF LIVING?



Renowned as the global market leading depot protection system, the SMART DPPS™ delivers physical protection from vehicle movements to rail depot staff whilst providing visual and audible warnings.

The Smart DPPS™:

- Protects staff and equipment
- Ensures safe and controlled movement of rail vehicles into and out of the depot
- Allows train maintenance operations to be conducted without endangering the safety of staff or damaging infrastructure

It is:

- Fully configurable, flexible and functional
- Proven in use and installed globally
- Capable of interfacing with third party equipment including signalling systems.
- Adaptable to the safe requirements of the depot