RISSB
RAIL INDUSTRY SAFETY AND STANDARDS BOARD
ABN: 58 105 001 465

RISSB product for prioritisation

Primary information	
Type of product being suggested:	Standard
Title of product being suggested:	Rollingstock Runaway Protection
Date of suggestion:	February 2018
Reason for suggestion:	The current AS7642 Turnouts does not adequately cover the 5 different types of catchpoint or the conditions of their use or the performance limitations. The current development for AS 7730 does not address the performance or operational requirements for Derailers.
Railway discipline area:	Train Control Systems

Scope:

General operational requirement for runout protection from sidings and on running lines

Design

- Function of the runout protection.
- Types of Derailer.
- Manually operated derailer.
- Remotely operated derailer.
- Catch points – 5 configurations.
- General component assembly and description and interface to normal track.
- Design specification for Derailer.
- Design specification for Catchpoints.
- Ballast drag or other run-off areas –design requirements.
- Workshop and designated area protection.

Network Design and operational requirements

- Determining the operational issues and performance
- Interface to signalling including track circuit interrupters
- Location requirements
- Installation
- Commissioning

Manufacturing and supply requirements

- Identification of components
- Product testing and acceptance
- Documentation requirements

Maintenance, Inspection and Monitoring

- Maintenance after derailment
- Inspection and assessment requirements
- Types of inspection and scheduled inspections
- Maintenance requirements
- Maintenance tolerances
- Component repairs

Commissioning, De-commissioning and Disposal

- Requirements for installed non-commissioned systems
- De-commissioning

Objective:

The standard will cover the operational need for runout protection using derailers and catchpoints. It will address how to determine the performance required based on the rollingstock, track configuration and signalling arrangements.

The standard covers the design of the derailer and catchpoint equipment, how it is installed and operated. The standard covers the ongoing maintenance, operation and de-commissioning of the equipment.

The standard can be used by signal engineers and track engineers and mechanical design engineers to design, maintain and operate the runout protection to meet operational needs.
Runout protection is an essential part of the safety of the rail network to achieve:

- Safe separation of trains and prevent collisions.
- Provision of valid movement authority for a train to its destination.

Hazard identification: (what safety hazards would the proposed document seek to address)

1	Harm to environment due to derailment or collision leading to spillage and contamination.	6	Deficient procedures for safely securing stabled rollingstock.
2	Harm to rollingstock due to collision between rollingstock.	7	Unplanned derailment due to operational error.
3	Harm to people due to collision with a train.	8	
4	Harm to infrastructure by runaway wagon derailment.	9	
5	Harm at level crossing from runaway wagon	10	

Benefits:

Safety

The secure stabling of rollingstock and trains is subject to human error. The runout protection of a derailer or catchpoint and deliberate derailment in a controlled manner onto a ballast drag prevents consequences including collision with train, collision with rollingstock, damage to infrastructure, environmental contamination from damage to rollingstock.

Derailers are also used to protect workshops and other areas where people may be working on rollingstock on a line connected to the network. In this case they ensure the safety of these people.

Interoperability[i] / harmonisation[ii]

There are train operators who operate across multiple rail networks and sets of operating rules. Having a standard for the engineering design of runout protection will aid the safe operations of trains and the stabling of trains and rollingstock. This will aid interoperability and harmonisation.

There are multiple suppliers of the derailers and catchpoints. There is no standard for assessment of the comparative performance of the equipment. This standard will provide a common basis for all suppliers and designers. It will allow the signalling and track designers to have a standard approach to the design and performance of the runout protection.

Financial

Currently without a standard the runout protection is hit and miss as to the right product and design for a given situation. The consequences from an uncontrolled derailment or collision is damage, injury and impact on train operations which all have a financial cost to the railway operator / manager.
The standard would ensure that the product selection and network design is fit for purpose.
The standard will allow product designers to upgrade their designs and to identify their performance capabilities.

Environmental
The uncontrolled runaway of a loaded wagon from a siding may lead to spillage of products that contaminate the environment. The standard prevents this and provides controlled derailment of the wagons in a safe manner through the design of the ballast drag.
Impacts:
The Legacy issue is that the design of derailers and catchpoints has been undertaken at a very simplified level without considering the operational needs or the performance of the equipment. This standard will provide a deterministic basis for operational needs, equipment design and the application of the derailer and catchpoint into the rail network. Work previously undertaken by ARTC with industry support from 4 suppliers provides the theoretical and practical basis for developing the standard.

i Interoperability - the ability of a process, system or a product to work with other process, systems or products (aka compatible systems through managed interfaces).

ii Harmonisation - the act of bringing into agreement so as to work effectively together (aka uniformity of systems).