HORIZONS 7 REPORT

Coupling and Uncoupling

National Harmonisation of Coupling and Uncoupling Procedures

Team TAG | 15 June 2026

Priority Classification

HIGH PRIORITY: READY FOR DEVELOPMENT

Framework

National Rail Action Plan – Tier 2 Harmonised Standards

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1 Executive Summary

Australia's rail network has historically operated through fragmented jurisdictional systems with varying operational procedures and safety requirements. Within the framework of the National Rail Action Plan (NRAP), this report evaluates the standardisation of coupling and uncoupling procedures as a strategic priority for national rail harmonisation.

Coupling and uncoupling are high-frequency, safety-critical tasks performed daily across freight and passenger rail operations throughout Australia. These activities expose rail safety workers to significant risks including crush injuries, uncontrolled rolling stock movement, communication failures, and train separation events. Variations in operator procedures, terminology, training requirements, and rolling stock interfaces continue to create procedural inconsistencies that increase the likelihood of human error and operational incidents.

This report identifies that the current lack of a nationally standardised framework creates unnecessary safety and operational risks across the industry. Existing procedural differences between Rail Safety Operators (RSOs) complicate workforce mobility, increase retraining requirements, and create inconsistencies in competency management and incident investigation. Stakeholder consultation undertaken throughout this project strongly supported the need for a nationally consistent baseline standard.

While barriers to implementation exist, including legacy rolling stock, varying coupler systems, and organisational resistance, this reform remains highly achievable due to its focus on procedural alignment rather than large-scale infrastructure modification.

The proposed implementation strategy adopts a staged approach beginning with a national compliance, verification, and gap analysis exercise against the existing RISSB Code of Practice (CoP): Shunting Operations in Terminals, Yards and Maintenance Facilities (2023). This is followed by consultation, validation, and final publication of a nationally harmonised standard supported through updates to competency and training frameworks.

Accordingly, this report recommends that ARISO progress the standardisation of coupling and uncoupling procedures as a high-priority harmonisation initiative capable of delivering measurable improvements in rail safety, operational reliability, and workforce consistency across Australia's rail industry.

> *In conclusion, the standardisation of coupling and uncoupling procedures represents a practical, low-complexity, and high-value reform capable of delivering measurable improvements in rail safety, operational reliability, and workforce consistency across Australia's rail industry. Accordingly, this report recommends that ARISO progress this initiative as a high-priority harmonisation project within the national rail reform agenda.*

2 Introduction

2.1 Coupling and uncoupling procedures

The Australian rail network has historically been a fragmented industry, consisting of isolated jurisdictional systems with disparate standards. This legacy has hindered innovation and complicated inter-jurisdictional operations. The National Rail Action Plan (NRAP) represents the most significant reform since electrification, aimed at creating a safe, efficient, and modern network. While Tier 1 focuses on mandatory standards (Digital Train Control, Single On-board Interface, and Rolling Stock Approvals), this project addresses Tier 2 Harmonised Standards, focusing on lifting productivity and safety through procedural alignment.

This project evaluates the standardisation of coupling and uncoupling procedures as a strategic priority for national rail reform. Coupling and uncoupling are critical, repeatable tasks where operators join or separate rolling stock units. Currently, variations across operators and yards create confusion and reliance on localised practices rather than a single trusted standard.

2.2 Prioritisation methodology for harmonised rail standards

The selection of this theme is supported by the application of the ARISO Prioritisation Methodology Framework, which identifies standards with the greatest potential for national benefit. The assessment considers the three core themes defined for national rail reform:

- **Strategic value**: Direct improvement in worker safety, reduced cost of incidents and accidents and operational efficiency, reducing training costs and increasing workforce mobility.
- **Implementation feasibility**: High technical readiness; procedural harmonisation requires significantly lower capital investment than digital infrastructure overhauls.
- **Stakeholder commitment**: Alignment with efficiency and safety targets agreed by Infrastructure and Transport Ministers (ITTM) and industry leaders.

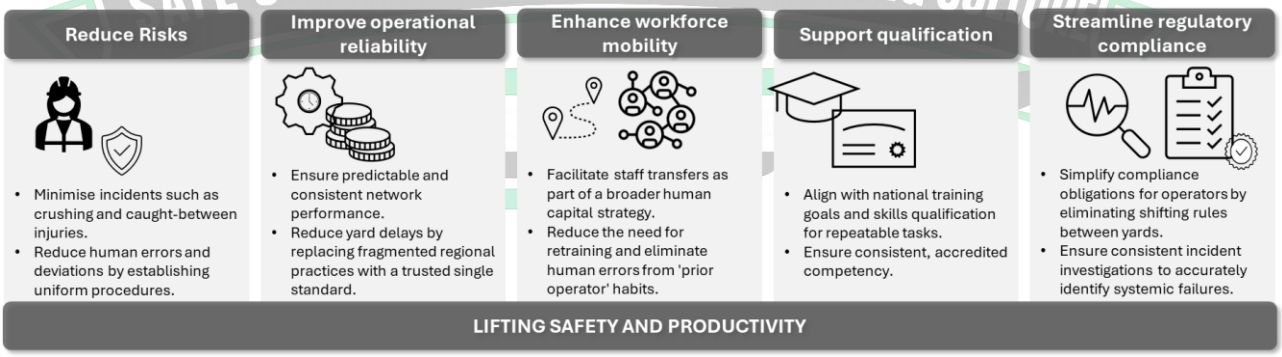

Figure 1: Benefits of national standardisation

This would provide substantial safety and operational benefits, offer a straightforward implementation pathway, and require low-cost investment, making it ready for immediate development within the national harmonisation work plan. Based on these criteria, the theme is classified as ***High Priority: Ready for Development*** within the national harmonisation work plan.

2.3 Report structure

This report identifies the current procedural variations (Section 5), analyses safety risks (Section 6), details the barriers to adoption (Sections 7) and outlines the benefits of harmonisation (Section 8).

3 Current State

3.1 Varying Coupling Systems and Brake Types

Australia uses various coupling types across passenger and freight fleets. The most common are:

- **Automatic (knuckle) couplers** on heavy freight trains
- **Multi-function (or semi-automatic) couplers** on suburban and regional passenger trains
- **Traditional screw and buffer style** on some heritage operations.

In addition, multiple-unit passenger trains use fully automatic electrical/mechanical couplers that connect both control circuits and pneumatic braking. To couple rolling stock with multi-function couplers to rolling stock with automatic couplers, a transition coupler is required.

Australian railways use several main braking systems.

- **Air (pneumatic) brakes** are most commonly the automatic Westinghouse continuous air brake for freight and many passenger trains.
- **Electro-pneumatic (ECP) brakes** on multiple-unit passenger sets add electrical control for faster, more uniform application and is now being used more widely on unit freight trains.
- **Hand brakes or parking brakes (mechanical screw, ratchet or spring types)** are used for securing individual vehicles. Some vehicles contain parking brakes that are automatically applied when the air brakes are applied or when the driver undertakes pre-determined actions such as removal of control keys.

Modern passenger rolling stock has varying degrees of automation in coupling with multifunction couplers generally connecting the mechanical, pneumatic and electrical connections automatically. Manual intervention, and thus the risks associated with going in between the vehicles and of manipulating these connections is eliminated unless there is a system failure. Some rolling stock also automatically applies parking brakes when the rail traffic driver removes controls or keys or contain interlocks that will not permit uncoupling without the park brakes being applied as a prerequisite.

Failures to follow prescribed procedures, or a lack of understanding of the braking systems can lead to *hazards of loss of control and runaway of rolling stock*, either at the time of coupling and uncoupling or at a time when the brakes on vehicles leak off some time later.

Electrical hazards from jumper couplings used to control multiple units and ECP brakes across vehicles can utilise voltages from 25 vDC to 415 vAC (and even higher in permanently coupled multiple units).

3.2 Existing procedures

To determine the procedures that are currently in place, a review was undertaken of a number of operators procedures as well as ATSB accident reports. It was determined that during a typical coupling procedure, a second person or shunter would generally work from the ground level and, where required, pilot the moving portion of the train to the stationary portion using guidance to the rail traffic driver via hand signals or verbal (radio) instructions.

Prior to attaching to the stationary portion, the second person or shunter needs to determine that it is secured against movement with handbrakes/parking brakes or chocks (or both).

After checking the alignment of the couplings, the second person or shunter indicates to the rail traffic driver to contact the stationary portion of the train. In most cases, such as the multifunction couplers and automatic couplers, this will engage the locking mechanism

internally. For hook and buffer fitted rolling stock, the second person or shunter needs to go between the vehicles to engage the linkages.

At this point a test is undertaken to determine that the mechanical locking mechanism has indeed locked by stretching the moving portion away from the stationary portion. The test is passed if the coupling holds the portions together.

Once successful mechanical connection is made, the second person or shunter may be required to go between the vehicles to connect pneumatic hoses and electrical connections.

Finally, the crew will need to ensure that all handbrakes/parking brakes are released as required to move the train.

When uncoupling, the crew will typically reverse the process but securing the stationary portion of the train with handbrakes/spring park brake and/or chocks should be emphasised as the air brakes may leak off over time.

A generally accepted step that featured in the various processes is **three step protection**. This is applied prior to the second person or shunter entering between the vehicles and protects the second person or shunter from energy sources such as movement of the rollingstock and electrical sources. It typically includes ensuring the throttle is closed, reverser is isolated and the locomotive brakes are applied. In addition, prior to uncoupling**, three step protection** includes the full-service application of the train brakes. Some operators mandate the exhausting of the brake pipe, which is a potentially safer option.

An additional critical element of coupling and uncoupling procedures is the management of the brake pipe system, which forms the continuous pneumatic control line throughout the train. The brake pipe maintains air pressure to keep brakes released under normal conditions while coupled, with any reduction in pressure resulting in automatic brake application across connected vehicles. As such, controlled venting of the brake pipe to atmosphere is a key method of securing rollingstock prior to coupling or uncoupling activities. By deliberately reducing or exhausting brake pipe pressure, the air brake system applies across the consist, and on fitted vehicles, may also activate spring park brakes. This process provides a fail-safe means of preventing unintended movement; however, its effectiveness is dependent on system integrity and may degrade over time due to leakage. Accordingly, brake pipe venting (to atmosphere) should be used in conjunction with handbrakes, chocks, and other securing methods, rather than as a sole means of protection.

Figure 2: a typical diesel electric locomotive with automatic knuckle coupler, various brake related hoses and multiple unit electrical coupling receptacle. Of note, this locomotive is also fitted with side buffers for heritage operations.

Figure 3: a typical freight wagon with a knuckle type automatic coupler, brake hoses and handbrake wheels. Note also the chocks fitted under the lead bogie.

Figure 4: a freight wagon with electro-pneumatic brake connection and spring park brakes which are actuated when brake pipe pressure is reduced significantly.

Figure 5: An intercity train with a multifunction coupler. Note the electrical heads on either side of the mechanical and pneumatic connections

4 Safety and Operational Risks

4.1 Safety Statistics

Data from ONRSR from 1 July 2022 – 31 March 2026 on incidents relating to shunting, coupling and uncoupling procedural failures are captured in the statistics below:

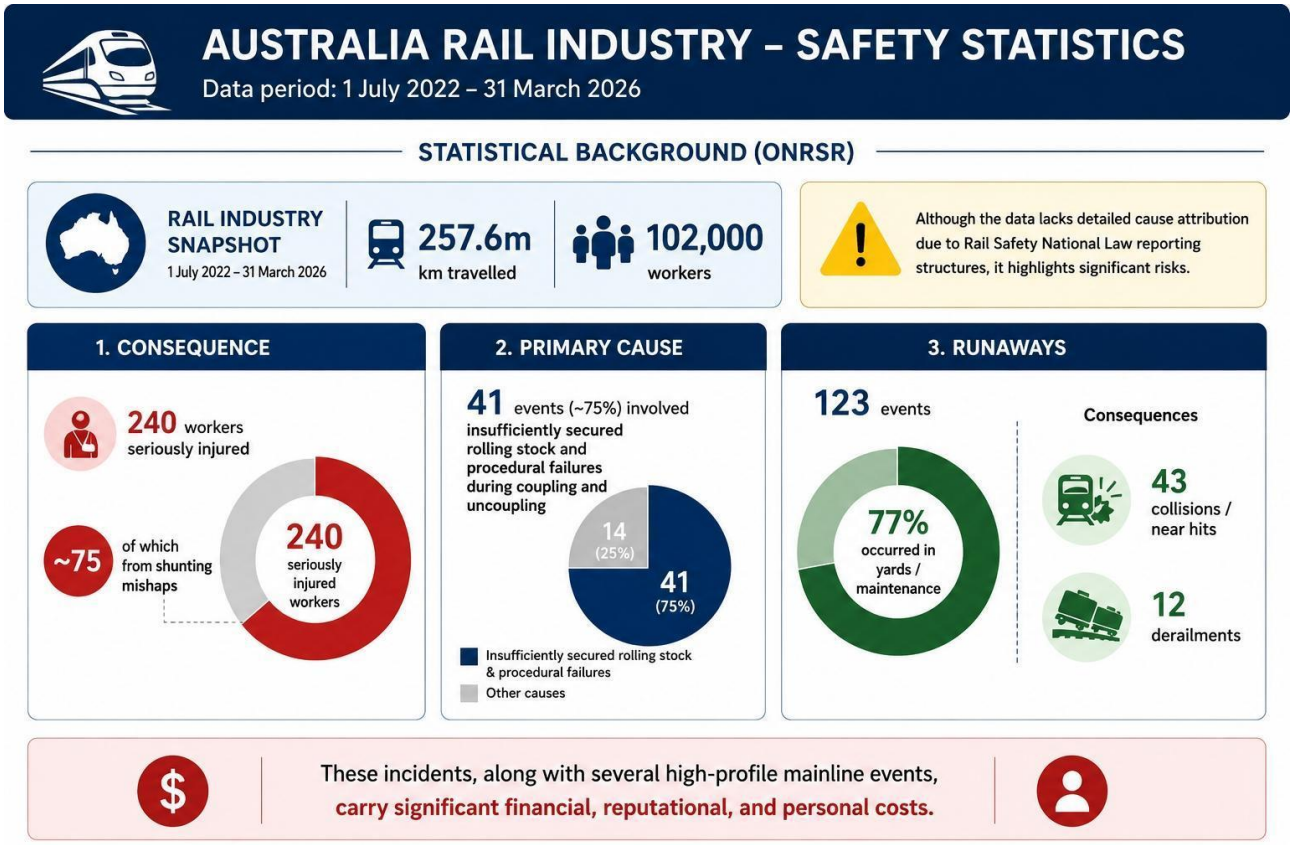

Figure 6: Safety Statistics from ONRSR on Coupling and Uncoupling related incidents

Serious injuries vary from crush injuries from moving vehicles during coupling, pinch points and trapped limbs when handling coupling gear, being struck by unexpected train movement, and falls while accessing couplers.

4.2 Safety Risk

Workers/ personnel on the ground face multiple hazards of crush injuries from moving vehicles during coupling, pinch points and trapped limbs when handling coupling gear, being struck by unexpected train movement, and falls while accessing couplers.

A review of the ARISO risk register and other RSO risk registers revealed the following hazards that are applicable to the tasks of coupling and uncoupling:

- Harm to persons/worker [crush injuries and entrapment, stored energy release]
- Uncommanded movement of rolling stock
- Uncommanded separation of rolling stock

The consequence of the hazards of uncommanded movement and uncommanded separation of rolling stock, range from *infrastructure damage, major/serious injuries* to **multiple fatalities**

from **collision and derailments** as the worst case credible. These are well documented and captured in the statistics above and within the case studies in Section 5.1.

Additional risks *include contact with live electrical connections* on multiple-unit couplers, *manual handling injuries* from heavy coupling components as well as the possibility of *being struck by pressurised hose bags* that may come apart with pressures up to 1000 kPa.

The causes of the hazards related to coupling and uncoupling process are varied. However, they can be categorised to three (3) main causes below:

- Human Error
- Failure to follow established procedures
- Competency (lack of)

It was also established that there are a number of human factors that may interplay with the execution of the administrative controls to diminish their effectiveness including:

- Fatigue
- Miscommunication
- Lack of training or competence
- Lack of supervision
- Vandalism
- Loss of situational awareness
- Poor ergonomic design

In addition to engineering controls, administrative processes and procedures aligned with industry standards or CoP will reduce the risks to SFAIRP. *The Code of Practice for Shunting Operations in Terminal Yards and Maintenance Facilities: 2023* section 4.5 lists the **'three-step protection'** activity to be applied by rail traffic crew for positive protection from rolling stock movement when working within the rolling stock profile.

THREE-STEP PROTECTION

- Applying the locomotive independent brake
- Positioning the throttle to idle or turning off the generator field (or equivalent)
- Placing the reverser (selector in the control stand) in the centre (neutral) position

Additional protection can be afforded by exhausting the train brake pipe to atmosphere and by having procedures relating to the application of handbrakes and chocks. Where a locomotive is stabled, the **three-step protection** should be applied with *handbrakes and chocks being mandatory*.

As the CoP is a guide, there are variations in the order or application of the '**three-step protection'** controls across different RSO in Australia (passenger and freight operators). The CoP states that an RSO may change these processes as required to mitigate any specific risks.

Recommendations

This review strongly advocates the following additions to the CoP:

- the brake pipe is vented to atmosphere prior to coupling and uncoupling of rollingstock to ensure that brakes are effectively applied

- Positive visual confirmation of stretch test is included in procedures

Another control to mitigate the hazards is ensuring trained and competent crew which are managed by each RSOs competency framework.

The Australian Qualifications Framework (AQF) has an existing unit of competency 'TLIC4074 – Shunt, couple and uncouple rail vehicles' which specifies that coupling requirements must align with individual workplace policies to accommodate these operator-specific variations.

5 Barriers to Adoption

When completing a detailed analysis of coupling and uncoupling procedures in Australia, a common theme emerged where any form of change had inherent barriers imposed. These barriers can be broken down into technical, regulatory, organisational, safety culture, and human factor categories.

Figure 7: Barriers to Adoption

Barrier Type	Key Challenges
Technical	• Legacy rolling stock: Older freight assets not designed for modern standardised safe working assumptions may have limitations impacting the ability to apply procedures without costly modification. • Mixed coupler types: Coexistence of automatic, semi-automatic, transition, and manual couplers complicates the definition of a single safe coupling process applicable across fleets. • Braking system variability: Differences in braking technologies and activation characteristics make it difficult to standardise how rolling stock is reliably secured during coupling and uncoupling. • System interface integration: Procedures will need to interface with existing safe working rules and yard protection arrangements.
Regulatory	• The RISSB Code of Practice (CoP) — Shunting Operations in Terminals, Yards and Maintenance Facilities: 2023, does not mandate the steps and process of coupling and uncoupling but requires each RSO to establish safe work method statements (SWMS) or work instructions (WI). • Risk of low uptake as the CoP is currently a guide without specific requirements, with various applications by RSOs.
Organisational	• Cultural resistance: Resistance to change and established ways of working. • Cost implications: Cost of updates to competency framework, training rollout, and impact on time efficiency due to rostering limitations and processes. • Industrial relations challenge: Endorsement and consultation requirements for training material updates and units of competency to be standardised between organisations and states.
Safety Culture & Human Factors	• Significant resistance to change in the rail industry, particularly among an ageing workforce who may see modernisation as a risk to their role stability. • A mentality that perceives modernised safety protocols as unnecessary disruptions with legacy methods as established and proven.
Risk of Standardisation	• Some operators already have mature and well-developed coupling procedures. • Risk that a poorly designed national standard could default to a lowest-common-denominator outcome. • These considerations argue for careful development, reinforcing the case for collaborative standards development based on best practice.

6 Benefits of National Harmonisation

The standardisation of coupling and uncoupling procedures across the Australian rail network provides measurable improvements in safety, operational reliability, and human capital management.

The standardisation of the coupling and uncoupling procedure will result in the following benefits shown below.

Benefit	Details
Reduce Safety Risk	• Eliminating procedural ambiguity: Harmonising operator-specific rules into a consistent standard to minimise execution errors during coupling activities, addressing a key risk area for crush injuries. • Less human error with established uniform procedure across all RSOs and mixed fleets, especially for new crew with different RSO experience and habits.
Improve Operational Reliability	• Improving interoperability simplifies the movement of rolling stock across different networks by ensuring coupling procedures are compatible and understood by all interface staff. • Enhancing supply chain reliability reduces delays at jurisdictional borders and interchange points caused by procedural mismatches or specialised equipment requirements.
Enhance Workforce Mobility	• Reducing retraining costs: Eliminates the need for duplicative "bridging" training when staff move between operators, saving time and administrative overhead. • Decreasing human error: Minimises the "negative transfer" of habits, where a worker incorrectly applies a procedure from a previous employer to a new environment.
Support Qualification & Competency	• Align with national training goals and skills qualification frameworks. • Ensure consistent, accredited competency units. • Addressing AQF competency gaps: Overcomes the current gap in the Australian Qualifications Framework (AQF), which lacks a dedicated national learning module for coupling and uncoupling.
Streamline Regulatory Compliance	• Simplifying compliance: A single national standard provides a clear benchmark for SFAIRP obligations, reducing the complexity of SMS audits across jurisdictions. • Ensuring consistent incident investigation: Enables more effective national trend analysis and more accurately identifies human factors versus systemic failures.

6.1 Case Studies & Evidence

CASE STUDY: Collision between banking locomotives and grain train 5446, Werris Creek NSW — 6 January 2022	
Incident	Three banking locomotives separated from a grain train, then collided with the rear of the train when it stopped, resulting in substantial damage.
Consequence	Significant damage to rolling stock. No fatality or injury.
Cause	The knuckle on the bottom operated coupler of the lead banking locomotive remained unlocked after coupling. A stretch test was not performed and there was no evidence of sufficient crew competence.
Improvements	Review of training assessment materials undertaken. Training updated to include a defined process for a stretch test after coupling and other shunting terms. Recommendations include consultation requirements with all relevant stakeholders for risk assessment processes.

CASE STUDY: Runaway of freight train wagons, Bordertown, South Australia - 23 November 2019	
Incident	Two (2) unattended wagons started to roll back towards Bordertown siding passing over a level crossing (automatic), bounced over a derailer (signalling infrastructure) and continued until a handbrake was applied, which then slowed and came to a stop after 1,425 m. The wagons stopped about **47 m** from the end of the **siding**, **a road** and **level crossing**.
Consequence	Minor damage to the derailer, associated rodding and slight misalignment of sleeper.
Cause	three (3) locomotive drivers taking shortcuts and ignore processes and protocols. Incl. Failure to apply handbrakes, ignore procedures in uncoupling locos, driver closed brake pipe air taps hence brakes not fully applied.
Improvements	Bowmans Rail issued a safety alert requiring **uncoupled wagons to have all air exhausted** and **handbrakes applied when left unattended**. The alert also reinforced that **all procedures must be adhered** to when **coupling and uncoupling rollingstock**

General Summary: The difference in stretch test method between RSOs illustrates that, as with many rail industry procedures, standards are determined by individual operators rather than by an industry standard. Given the frequent procedural differences, assessment of competence becomes of particular importance — especially when personnel have transferred from another organisation with different procedural requirements. This can minimise misunderstanding and negligence of conducting procedures.

7 Stakeholder Engagement

Effective stakeholder engagement is critical to the successful implementation of a nationally standardised coupling and uncoupling framework. Given the operational diversity across Australian rail networks, consultation with frontline rail safety workers, operators, regulators, trainers, unions, rolling stock specialists, and infrastructure managers is necessary to ensure the final standard is practical, safe, and operationally achievable across both freight and passenger environments.

The engagement strategy for this project focused on gathering industry feedback regarding the current risks, implementation feasibility, and overall value of procedural harmonisation. Consultation was undertaken with experienced industry leaders and rail professionals involved in shunting operations, operational safety, and rail workforce management. Industry leaders included Sudha Niles, GM – Product & Innovation, ARISO and Brett King, GM Governance Risk & Assurance, Downer RTS. Their feedback was used to validate the project direction and identify operational considerations that may impact implementation.

7.1 Stakeholder Feedback and Industry Input

Feedback received from industry stakeholders strongly supported the need for greater national consistency in coupling and uncoupling procedures. Stakeholders identified several critical safety risks associated with the current fragmented approach, including crush injuries and entrapment, stored energy releases, line-of-sight failures, communication breakdowns, train parting, and uncontrolled runaways. These concerns aligned closely with the hazards identified throughout the report and reinforced the importance of procedural standardisation.

Stakeholders also highlighted several operational benefits that could be achieved through harmonisation, including:

- elimination of human error across mixed fleet environments;
- improved interoperability between operators and networks;
- streamlined training and workforce mobility; and
- simplified auditing and incident investigation processes.

Industry participants acknowledged that one of the primary implementation challenges would be training workers in procedures or equipment configurations they may rarely encounter in day-to-day operations. Additional feedback also suggested that future reform should consider broader freight coupling equipment standardisation were reasonably practicable.

Importantly, stakeholders agreed that the proposed minimum requirements framework captured the major safety and operational risks currently faced by industry and provided a suitable baseline for national implementation.

7.2 Ongoing Stakeholder Engagement and Implementation Integration

Stakeholder engagement will continue throughout the implementation phase outlined in Section 9. During the baseline audit and consultation stages, Rail Safety Operators (RSOs) and Rail Infrastructure Managers (RIMs) will be required to actively participate in workshops, procedural reviews, practical trials, and risk assessments associated with the proposed national framework.

This consultation process will allow organisations to identify operational challenges, propose risk-based improvements, and validate the practicality of the standard across different rolling stock types, coupling systems, and operating environments. Frontline rail safety workers will

play a critical role during testing and validation activities to ensure the procedures remain practical and reduce the likelihood of human error during live operations.

Feedback gathered throughout implementation will be reviewed collaboratively by ARISO, ONRSR, and participating organisations to refine the final national standard prior to formal issue. This approach ensures the final framework is industry-informed, operationally realistic, and capable of delivering long-term safety and interoperability benefits across the Australian rail network.

8 Proposed Implementation Strategy

The proposed implementation strategy does not seek to reinvent existing frameworks. Rather, it provides the administrative controls necessary to ensure safe practices are consistently managed, documented and verified across the industry through measures such as checklists and standardised work instructions.

This staged implementation creates an achievable minimum viable product while also establishing the foundation for long-term procedural harmonisation across Australia's rail network.

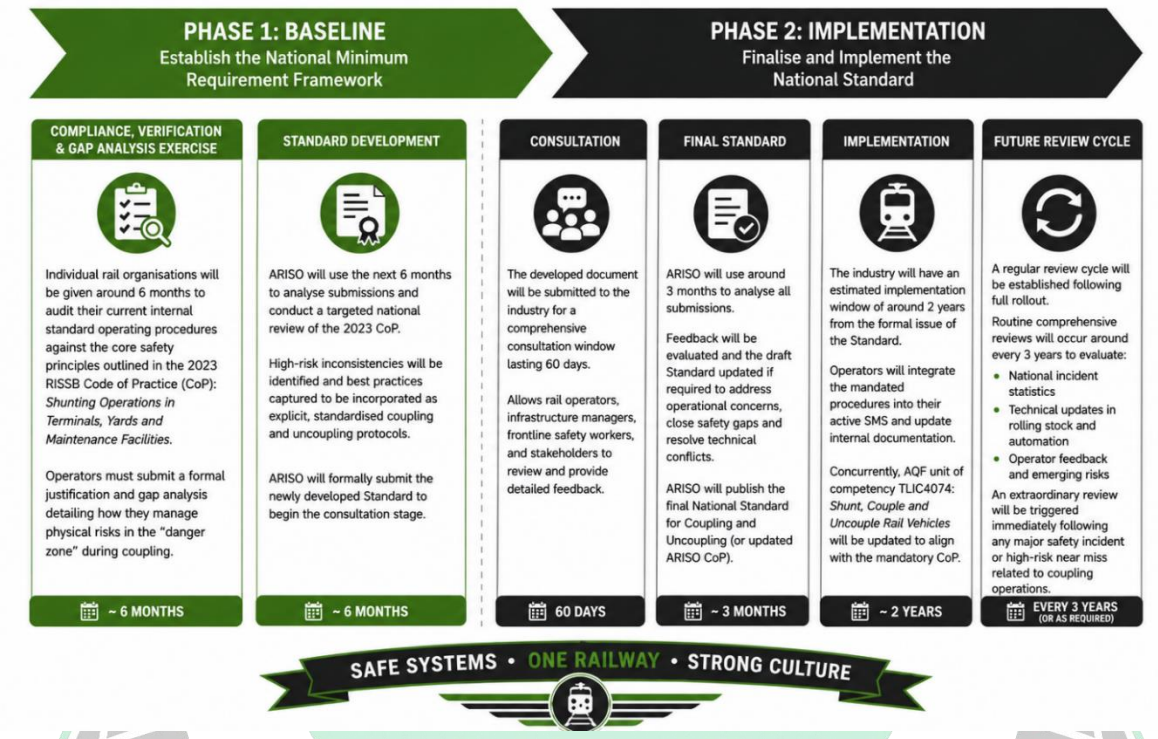

Figure 9: Proposed Implementation Strategy Phases

8.1 Phase 1: Baseline

The initial phase of the implementation strategy involves defining a National Minimum Requirement Framework for coupling and uncoupling procedures by utilising the existing RISSB Code of Practice (CoP): Shunting Operations in Terminals, Yards and Maintenance Facilities (2023) as the regulatory anchor.

8.1.1 Compliance, verification, and gap analysis exercise

To kickstart this process, individual rail organisations will be given around 6 months to thoroughly analyse the current CoP and submit their compliance, verification, and gap analysis exercises. Operators and rail organisations will be required to audit their current internal standard operating procedures against the core safety principles outlined in the 2023 CoP, specifically providing a formal justification and gap analysis regarding how they manage physical risks in the "danger zone" during coupling.

8.1.2 Standard Development

Following these submissions, ARISO will utilize the next 6 months to analyse the outputs and drive a targeted national review of the 2023 CoP. During this period, ARISO will evaluate the

operator reports to identify high-risk inconsistencies, providing the essential evidence base needed for full procedural alignment. This exercise captures best practices to be permanently incorporated as explicit, standardised coupling and uncoupling protocols into this national base, establishing a practical pathway toward full national harmonisation. To conclude this phase ARISO will share the newly developed standard to begin the consultation stage.

8.2 Phase 2: Implementation

8.2.1 Consultation

The developed document will be formally submitted to the industry for a comprehensive consultation window lasting 60 days. This period allows rail operators, infrastructure managers, frontline safety workers, and relevant stakeholders to thoroughly review the draft, assess its operational impacts, and provide detailed feedback.

8.2.2 Final Standard

Following the completion of the 60-day window, ARISO will utilize a period lasting around 3 months to analyse all submissions gathered during the consultation period. ARISO will evaluate the industry's feedback to ensure the guidelines remain practical and effective across diverse operational environments. If necessary, ARISO will update the draft Standard to address legitimate operational concerns, close identified safety gaps, and resolve unintended technical conflicts. At the end of this phase, once these refinements are completed, ARISO will formally publish the final National Standard for Coupling and Uncoupling, alternatively issuing an updated ARISO Code of Practice (CoP) - Shunting Operations in Terminals, Yards and Maintenance Facilities to be distributed to all RIMs and RSOs.

8.2.3 Implementation

The industry will look at an estimated implementation window of around 2 years from the formal issue of the standard, after which all operators will be required to fully comply with the new standard. During this 2-year period, operators will integrate the mandated procedures into their active Safety Management Systems (SMS) and update their internal documentation.

Concurrently, the Australian Qualifications Framework (AQF) will update the unit of competency “TLIC4074: Shunt, Couple and Uncouple Rail Vehicles” to align with the mandatory CoP during subsequent transport skills council reviews of the applicable modules.

8.2.4 Future Review Cycle

To ensure the newly established standard remains effective and resilient to industry shifts over the long term, a regular review cycle will be established following full rollout. It is anticipated that the standard will undergo a routine comprehensive review around every 3 years. This cycle will evaluate national incident statistics to ensure shunting-related risks are actively declining, adapt to technical updates in rolling stock and coupling automation, and incorporate continuous feedback from operators. Additionally, an extraordinary review will be immediately triggered in the event of any major rail safety incident or high-risk near miss related to coupling operations nationally.

Figure 10: Proposed Implementation Strategy Timeline

9 Conclusion and Recommendations

The standardisation of coupling and uncoupling procedures provides a practical and achievable opportunity to improve safety, operational consistency, and workforce interoperability across the Australian rail network. Current procedural variations between operators create unnecessary operational complexity, increase the likelihood of human error, and contribute to inconsistencies in training, competency management, and incident response.

This report has demonstrated that coupling and uncoupling activities remain high-risk operational tasks requiring a nationally consistent approach to procedural controls, training standards, and risk management practices. The analysis undertaken throughout this report, supported by stakeholder consultation, case studies, and industry evidence, confirms that the current fragmented approach creates avoidable safety and operational risks across both freight and passenger rail environments.

The proposed implementation strategy establishes a practical pathway toward national harmonisation through the adoption of a National Minimum Requirement Framework supported by consultation, validation, competency alignment, and ongoing industry review. Importantly, this reform focuses primarily on procedural alignment and administrative controls rather than costly infrastructure or rolling stock modifications.

RECOMMENDATION

That ARISO progress the development of a nationally harmonised standard for coupling and uncoupling procedures as a priority initiative under the National Rail Action Plan, to improve safety outcomes, operational reliability, and workforce consistency across the Australian rail industry.

10 References

https://www.atsb.gov.au/investigations/ro-2022-001

https://www.atsb.gov.au/investigations/ro-2019-020

https://www.atsb.gov.au/investigations

11 Appendix A: Questionnaire

Questionnaire to be attached by the report authors.

Outlook

RE: Request for ARISO Horizon 7 Project Questionnaire Participation: [Coupling and Uncoupling - TAG Team]

From Sudha Niles <SNiles@ariso.org.au>

Date Fri 29/5/2026 12:14 PM

To Alicia Hartono <Alicia.Hartono2@transport.nsw.gov.au>

Cc Le Nguyen(DT Infra) <le.nguyen@dtinfrastructure.com.au>; Shuker, Thane <thane.shuker@pta.wa.gov.au>; BARROS Tereza <tbarros@systra.com>; Garth Schwartz <Garth.Schwartz@onrsr.com.au>

Hi TAG team,

It was great to discuss and learn about your project. Here are a few notes on the discussion

Safety risks
Harm to persons

- Crush Injuries and Entrapment
- Stored Energy Releases
- Line-of-Sight and Communication Failures

Other risks include train parting and runaways.

Benefits in standardisation

- Elimination of Human Error in Mixed Fleets
- Interoperability of Equipment
- Streamlined Training and Workforce Mobility
- Simplified Incident Investigation

Challenges in implementation

- Training people for processes that they may not use.
- Consider standardising the coupling gear for freight.

minimum requirements

- The list presented on the form captures all the relevant issues. Nothing further to add.

All the best with your projects.

Regards

Sudha Niles

General Manager – Products & Innovation

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ARISO AUSTRALIAN RAIL INDUSTRY STANDARDS ORGANISATION
Advancing safety and productivity

I work flexibly. I don't expect you to read or respond to my emails outside of your normal work hours.

ARISO is a geographically diverse organisation. We acknowledge the Traditional Owners of Country throughout Australia. We recognise their cultures, histories, and diversity, and their continuing connection to the lands, waters, and

communities, and to Elders past and present.

From: Alicia Hartono <Alicia.Hartono2@transport.nsw.gov.au>
Sent: Friday, May 15, 2026 1:24 PM
To: Sudha Niles <SNiles@ariso.org.au>
Cc: Le Nguyen(DT Infra) <le.nguyen@dtinfrastructure.com.au>; Shuker, Thane <thane.shuker@pta.wa.gov.au>; BARROS Tereza <tbarros@systra.com>; Garth Schwartz <Garth.Schwartz@onrsr.com.au>
Subject: Request for ARISO Horizon 7 Project Questionnaire Participation: [Coupling and Uncoupling - TAG Team]

Hi Sudha,

Hope you are well.
Firstly, thank you for providing your availability to receive our request.

Our Team's (TAG) Project Theme is Standardisation for Coupling and Uncoupling Procedures.
As part of our stakeholder engagement strategy, we would like to reach out to industry leaders for their insights on the current procedures , standards, practices and risks associated with the tasks.

We would like to request your participation in a brief questionnaire which should take 15 minutes to complete, as attached.
Your feedback is incredibly valuable to us.

Would you have any availability for a 30-minute discussion with the team in the next two (2) weeks ?
If you are unavailable, we would be grateful if you could complete the survey by 29/05/2026.

Thank you so much for your time and support to our project.
Have a wonderful weekend.

Regards,
Alicia

Alicia Hartono *(she/her)*
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ARISO Horizon 7 – TAG Team

Standardization of Coupling and Uncoupling Procedure

Questionnaire

Name: Brett King

Role / Position: GM Governance Risk and Assurance

Organisation: Downer Rail

Date: 29/05/2026 Signature: 

1. Does your organisation perform coupling and uncoupling activities

   ☑ Yes ☐ No

2. If so, is there a procedure put in place to govern coupling and uncoupling

   ☑ Yes ☐ No ☐ N/A

3. Is your procedure benchmarked on any external standards?

   ☐ Yes ☑ No ☐ N/A

4. In your opinion, what are the greatest safety risks caused by inconsistent coupling and uncoupling procedures across different operators?

   ☑ Harm to persons

   ☐ Uncommanded movement of rollingstock

   ☐ Uncommanded separation of rollingstock

   ☐ Other, _____

5. In a couple of words, describe what you believe are the benefits in standardising the procedures in the following areas for coupling and uncoupling procedures

   ☑ Safety

Provides a broader understanding of the control effectiveness

   ☐ Training and competency

   ☐ Other

6. Which mandatory minimum requirements do you believe should be included within the national framework? (Select all that apply)

☑ Communications protocol

☑ Hand signals and radio terminology

☑ Worker positioning requirements

☑ Verification and Validation steps (Stretch test, Pull test, Visual Inspection)

☑ Isolation and brake application requirements

☑ Competency and training standards

☐ Incident reporting requirements

☐ Other: _____

7. What challenges do you believe organisation may face when implementing a nationally standardised approach?

Different needs and types of operations across the industry.

8. Do you support the introduction of a National Minimum Requirement Framework for coupling and uncoupling procedures

☐ Strongly support ☑ Support ☐ Neutral ☐ Oppose ☐ Strongly Oppose

9. What additional recommendations would you provide to improve the adoption of the national standardization process?

Be performance focused not prescriptive in the content.

Thank you for participating in our survey.
Please share any additional comments or suggestions.

ARISO Horizon 7 – TAG Team

Standardization of Coupling and Uncoupling Procedure

Questionnaire

Name: Paul

Role / Position: SESA Lead

Organisation:

Date: 01/06/2026 Signature:

1. Does your organisation perform coupling and uncoupling activities

   ☐ Yes ☑ No

2. If so, is there a procedure put in place to govern coupling and uncoupling

   ☐ Yes ☑ No ☐ N/A

3. Is your procedure benchmarked on any external standards?

   ☐ Yes ☑ No ☐ N/A

4. In your opinion, what are the greatest safety risks caused by inconsistent coupling and uncoupling procedures across different operators?

   ☑ Harm to persons

   ☐ Uncommanded movement of rollingstock

   ☐ Uncommanded separation of rollingstock

   ☐ Other, _____

5. In a couple of words, describe what you believe are the benefits in standardising the procedures in the following areas for coupling and uncoupling procedures

   ☑ Safety

   ☐ Training and competency

   ☐ Other

6. Which mandatory minimum requirements do you believe should be included within the national framework? (Select all that apply)

☑ Communications protocol

☑ Hand signals and radio terminology

☑ Worker positioning requirements

☑ Verification and Validation steps (Stretch test, Pull test, Visual Inspection)

☑ Isolation and brake application requirements

☑ Competency and training standards

☐ Incident reporting requirements

☐ Other: _____

7. What challenges do you believe organisation may face when implementing a nationally standardised approach?

Cultural resistance

8. Do you support the introduction of a National Minimum Requirement Framework for coupling and uncoupling procedures

☐ Strongly support ☑ Support ☐ Neutral ☐ Oppose ☐ Strongly Oppose

9. What additional recommendations would you provide to improve the adoption of the national standardization process?

No additional insights

Thank you for participating in our survey.

Please share any additional comments or suggestions.