RISSB

RAIL INDUSTRY SAFETY AND STANDARDS BOARD

Condition Monitoring of Fixed Rail Infrastructure

Guideline

This Rail Industry Safety and Standards Board (RISSB) product has been developed using input from rail experts across the Rail Industry. RISSB wishes to acknowledge the positive contribution of all subject matter experts and DG representatives who participated in the development of this product.

The RISSB Development Group for this Guideline consisted of representatives from the following organisations:

Aben Technical Services	ACRI	ARTC
Aurizon	CQ University	Cross River Rail
Department of Transport, Victoria	EngAnalysis	Sydney Metro
KPMG	Monash IRT	Mott MacDonald
Metro Trains Melbourne	Network Rail	Roy Hill Infrastructure
RTBU	Shoal Group	TfNSW
V/Line	WSP	

Development of this Guideline was undertaken in accordance with RISSB's accredited processes. It was approved by the Development Group, endorsed by the Standing Committee, and approved for publication by the RISSB Board.

I commend this Guideline to the Australasian rail industry as it represents industry good practice and has been developed through a rigorous process.

Damien White
Chief Executive Officer
Rail Industry Safety and Standards Board

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1 Introduction

1.1 General

This Guideline describes the condition monitoring (CM) processes for fixed rail infrastructure and provides guidance to all interested parties responsible for monitoring and managing the condition of fixed rail infrastructure assets on implementing an effective condition monitoring program.

1.2 Objectives

This Guideline provides a consistent approach for developing a CM programme for fixed rail infrastructure assets based on industry-accepted standards and good practice.

1.3 Scope

This Guideline is relevant to all organisations responsible for developing, managing, and delivering a CM programme for rail infrastructure, particularly fixed assets.

This Guideline is intended to align with:

- ISO 17359:2018 Condition monitoring and diagnostics of machines — General guidelines,
- ISO 55001:2014 Asset management — Management systems — Requirements, and
- The maintenance framework 2016: Global Forum on maintenance and asset management (GFMAM).

This Guideline is not intended to address the detailed requirements of the documents mentioned above but supplements those documents to make the guidance rail specific and to ensure that the rail infrastructure manager's (RIM) CM programme aligns with their asset management plan.

1.4 Context

CM within this Guideline is limited to aspects specific to the asset's health monitoring and does not include predictive monitoring. This Guideline will detail CM to compare measured parameters against designated thresholds but will not go into the methods for using the collected data for predicting deterioration rates and future failure points.

Therefore, the nuance of CM as health monitoring, through the lens of the RCM model (as discussed in section 2.2 of this Guideline), is that it uses a series of gates where the condition is viewed against several set thresholds to understand where the asset may fail. The P-F curve in Figure 1 helps visualise this relationship.